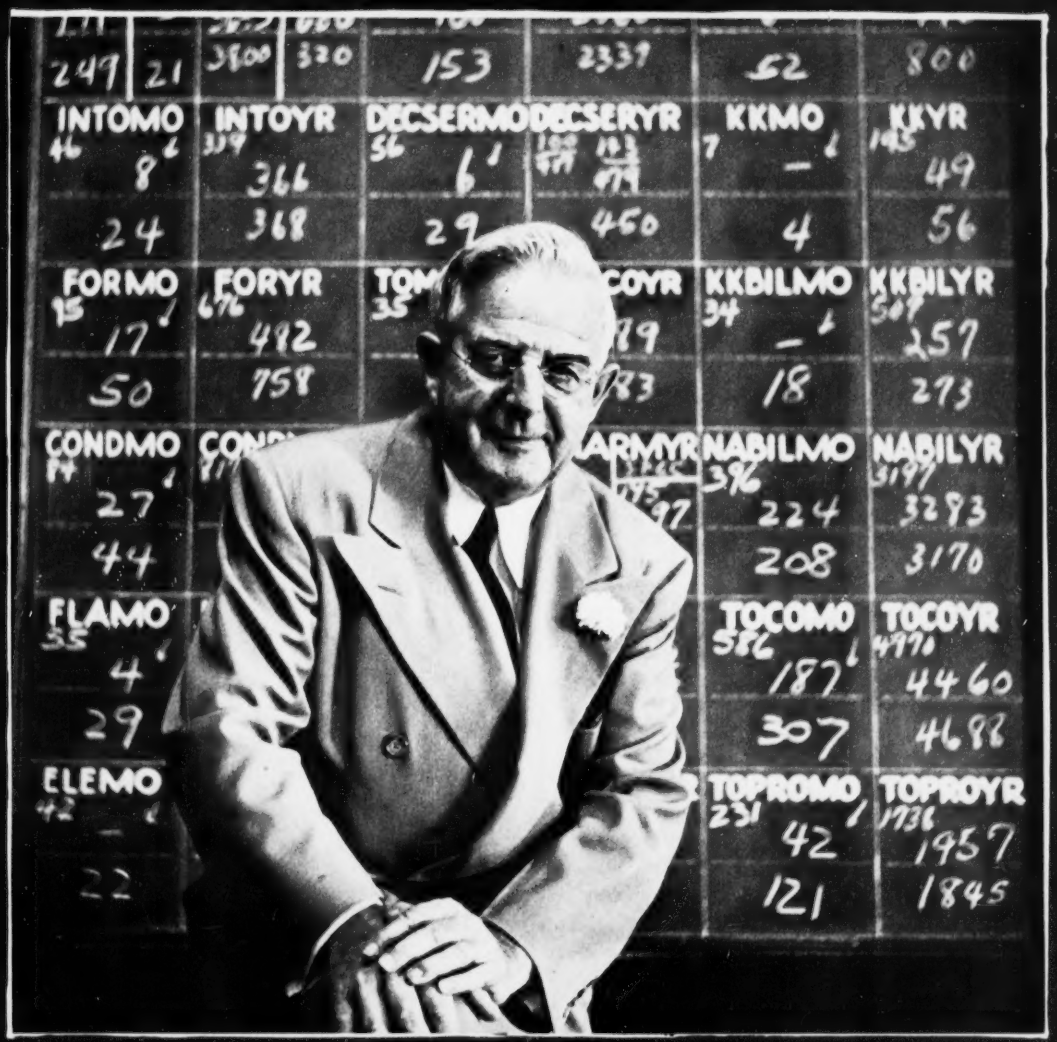
ENGINEERING NEWS-RECORD



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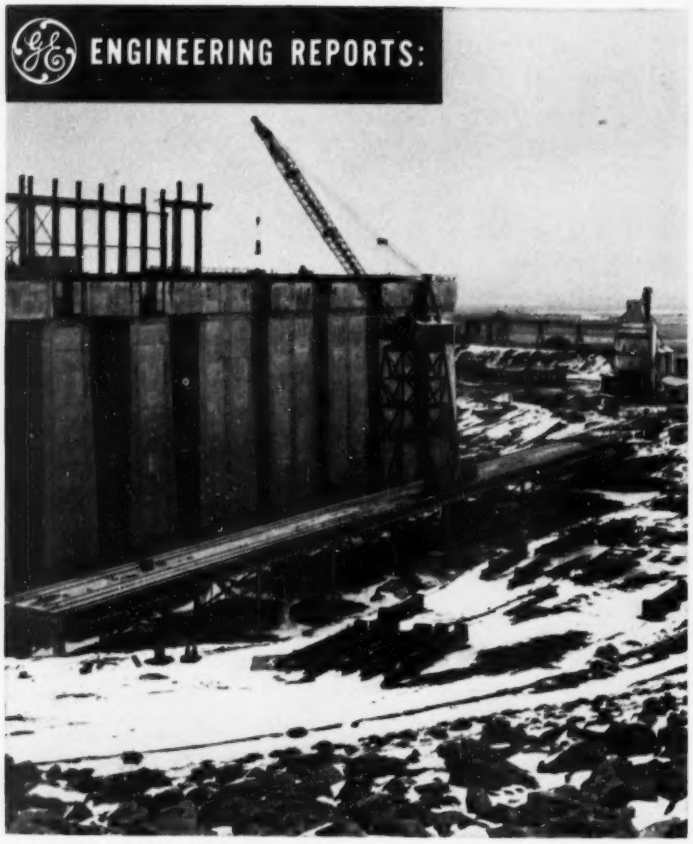
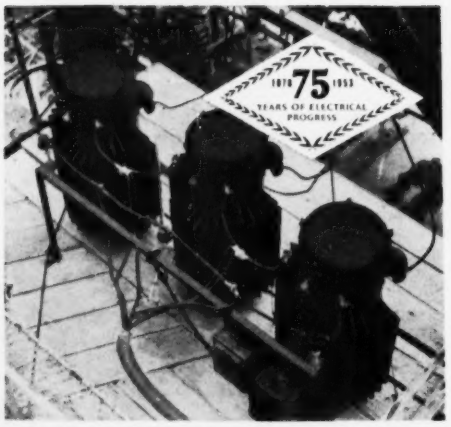
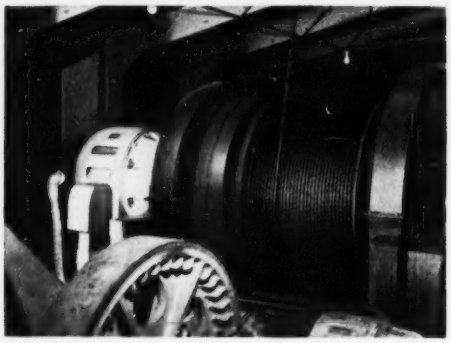


ELECTRICAL CO-ORDINATION provides continuous operation of this revolver crane 100 feet above the base of the huge intake structure. Movement along trestle is powered by a G-E 200-hp Type MR motor at foot of the gantry.



ADEQUATE POWER to maintain smooth, dependable crane performance is stepped down by these portable G-E transformers.



RELIABLE DRIVES must stand exacting demands of this revolver crane. G-E 200-hp motors and control are key to this application.

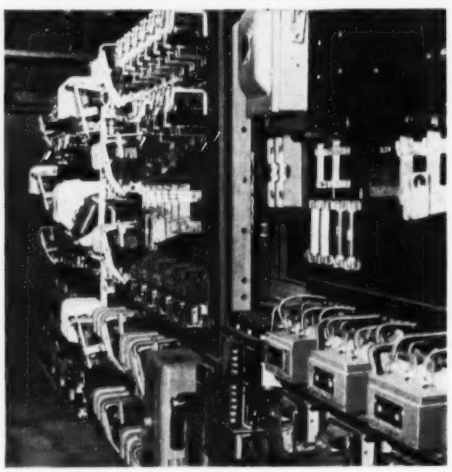
Electricity helps Garrison Dam keep round-the-clock schedule

G-E drives, still on the job after six years, are helping to harness Missouri River

At Garrison Dam near Bismarck, N. D., completely electrified equipment plays a vital role in keeping round-the-clock construction work on schedule. All electrical systems for the project's main stages were designed and co-ordinated by U. S. engineers, Peter Kiewit and Son Co., and Morrison-Knudsen Co. contractors—aided by G-E application engineering. This engineering teamwork resulted in maximum working capacity and fast, smooth operation.

Let G-E application engineers help *you* get the most from your construction equipment through electrification—from the smallest drive to the largest power distribution system. Contact your nearest G-E Apparatus Sales Office. General Electric Co., Schenectady 5, New York.

664-31



CENTRALIZED CONTROL equipment on this compact G-E panel is mounted in the cab for simple one-man operation.

Engineered Electrical Systems for Heavy Construction

GENERAL ELECTRIC

NEW BANK BUILDING IN BOSTON. This curved-front structure on busy Post Office Square is the new addition to the Federal Reserve Bank of Boston. The 6½-story air-conditioned building occupies an area approximately 99 ft x 134 ft, and has 96,943 sq ft of floor space. It has terra-cotta tile partitions and asphalt-tile floors throughout, and features liberal use of ornamental plaster. Its main entrance and entire lobby are cloaked in marble. The exterior, a pale-tan limestone, covers a sturdy steel framework of Bethlehem Structural Shapes, weighing about 800 tons.

Architects: Harbeson, Hough, Livingston & Larson, Philadelphia; *Associate Architects:* Kilham, Hopkins, Greeley & Brodie, Boston; *General Contractor:* George A. Fuller Co., Boston; *Steel Fabricator:* Groisser & Shlager Iron Works, Somerville, Mass.; *Steel Erector:* Anthony Lavelli, Somerville, Mass.

BETHLEHEM STEEL

FOR YOUR
WATCH
CHAIN

WILD
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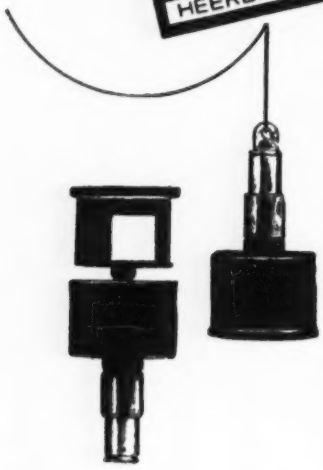

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The Optical Square is a handy tool for checking on location, for alignment, and for laying out right angles. Speedily used as a hand level, it has an accuracy in leveling of 1 inch in 200 feet. The instrument is available in single and double prisms.

For further detailed information on the operation and use of Optical Squares call or write for Booklet EN 101

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Robert F. Boger
Publisher

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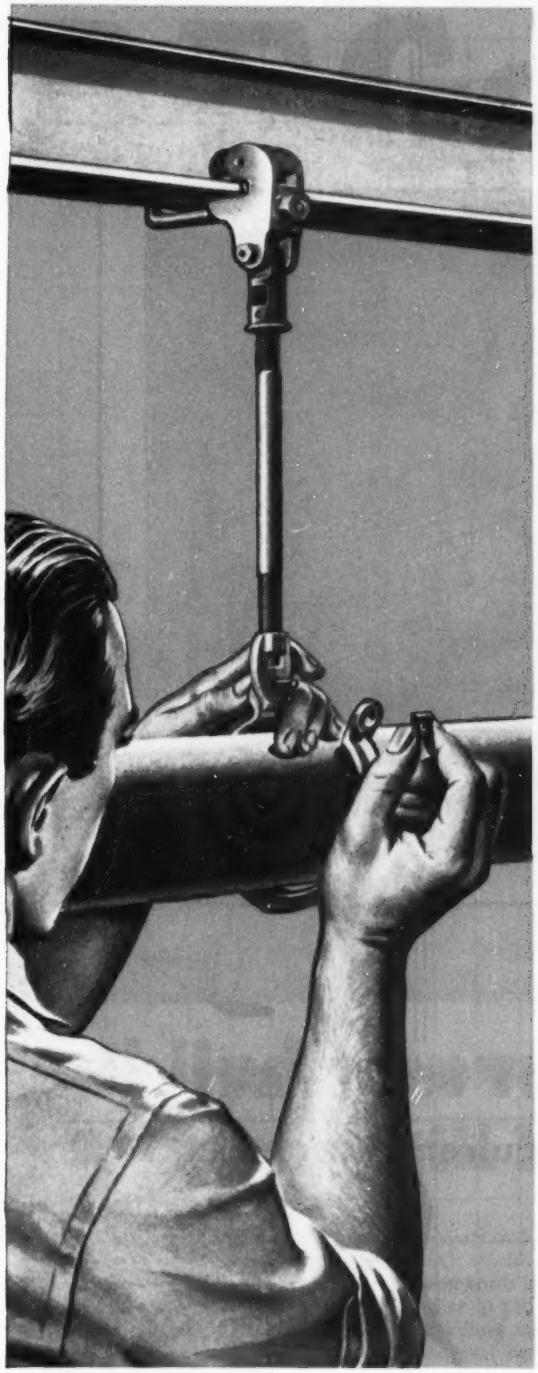


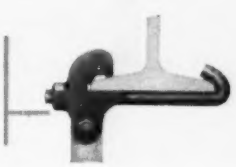
Right for the job and priced right!

There's nothing sensationally "tricky" about this pipe hanger. It's just the most practical and inexpensive way of hanging pipe for a great many jobs. Complete assembly includes a split pipe ring and socket, rod, extension piece and universal I-beam clamp. Available for pipe from ½" to 8", for loads from 75 to 1510 lbs.

It is well worth remembering that a good piping job is too important to jeopardize with improvised or inadequate pipe hangers and supports. You can get from Grinnell just the right pipe hanger for any job within the shortest possible time at the lowest cost consistent with quality.

Grinnell has the most complete line of pipe hangers, extensive manufacturing facilities, warehouses across the country, and jobbers in almost every city and town.

UNIVERSAL SIDE I-BEAM MALLEABLE IRON CLAMP (Fig. 225) . . . Used on American Standard I-beams as well as wide flange beam sections. One of 14 different Grinnell beam clamps to meet varying specifications.



MALLEABLE IRON EXTENSION PIECE (Fig. 157) . . . Bolts into Universal Side I-beam Clamp (Fig. 225) and other malleable iron clamps to receive hanger rod. Provides for adjustment of rod.

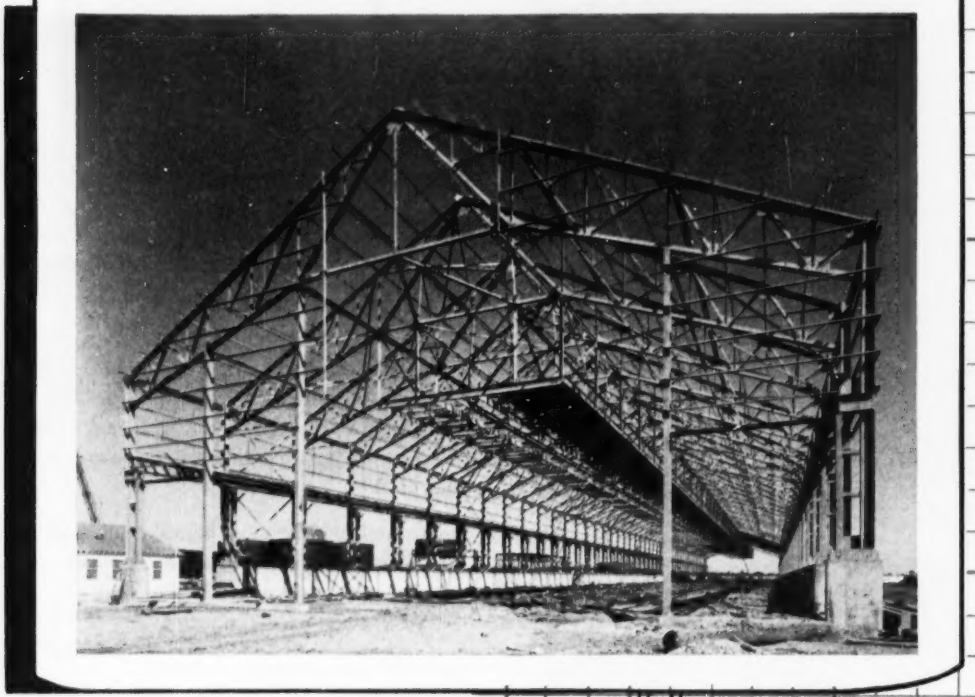
MALLEABLE IRON SPLIT PIPE RING AND SOCKET (Fig. 107R) . . . Once hanger rod is turned to proper adjustment and the attached half of the ring is snugged against the pipe, the other half of the ring is swung up into position and bolted. For 13 pipe sizes, ½" to 8", for loads from 75 to 1510 lbs.

GRINNELL

WHENEVER PIPING IS INVOLVED

Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

Manufacturer of: pipe fittings • welding fittings • forged steel flanges • steel nipples • engineered pipe hangers and supports Thermolier unit heaters • Grinnell-Saunders diaphragm valves • prefabricated piping • Grinnell automatic fire protection systems



Most times only a tailor-made building will meet all manufacturing requirements . . .

A "tailor-made building" is purposely designed to accommodate your equipment and your method of operation.

Only in buildings designed specifically for you will you find openings for lighting, ingress, and egress exactly where you want them.

Even in such "tailor-made buildings" there is sufficient standardization nowadays to cut costs and reduce fabricating and erecting time.

- Clinton Bridge Corporation
- Gage Structural Steel Corporation
- Midland Structural Steel Corporation

Send your plans and specifications to us to be estimated.

Fabricators and erectors of structural steel for highway and railroad bridges; industrial, office, school, and government buildings; airport structures; harbor facilities.

B.F.Goodrich

Universal tires roll over jagged slag, can still be recapped!

THIS truck, part of the fleet of the McGraw Construction Company of Middletown, Ohio, dumps 55,000 pounds of slag fill for a new highway. The following truck must roll over this slag, often jagged and sharp-edged as broken glass. Many tires would be torn and cut to pieces after such rugged treatment.

But McGraw uses B. F. Goodrich Universal tires—tires that take such rough work so well, the company reports, they can actually be recapped! The Universal tread is specially compounded to resist rock cuts and bruises. Husky, wedge-shaped cleats defy snags, give positive traction in either direction.

And Universal tires are built with the patented B. F. Goodrich nylon shock shield. Layers of strong, elastic nylon cords under the tread stretch together to protect the cord body from tire-killing cuts and bruises. Result: Universal tires give you more hours of service, more recappable tires and hours of service per recap, increased bruise resistance and less danger of tread separation. You pay no more for the advantages of the exclusive nylon shock shield.

No wonder Paul J. Thiel of the McGraw Purchasing Department says: "We use B. F. Goodrich tires 100%." There's a B. F. Goodrich tire that saves money on all types of off-the-road work. See the complete line at your retailer's store. The address is listed under Tires in the Yellow Pages of your phone book. Or mail the coupon below.

Specify B. F. Goodrich tires when ordering new equipment

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Please send:
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With Rex Pumpcrete—the pump that pumps concrete by pipe line—you can keep the cost of placing concrete on tall structures at "rock bottom." Just spot Pumpcrete pump in the most convenient location and extend the pipe line up floor by floor as work progresses.

Here's what you save:

You save on direct labor cost. Concrete is transported, elevated and placed in one operation. No buggying.
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You reduce "dead time". There's no interference with other crews—carpenters, plumbers, electricians, etc.—when you use Pumpcrete.
You eliminate non-productive moving time. No need to move mixing equipment from place to place.

No matter how small or how large the area of each individual floor, pipe line flexibility pays off for you. For the complete story on how you can put up buildings for less with Rex Pumpcrete, see your local Rex Distributor or write to Chain Belt Company, 4633 W. Greenfield Ave., Milwaukee 1, Wis.

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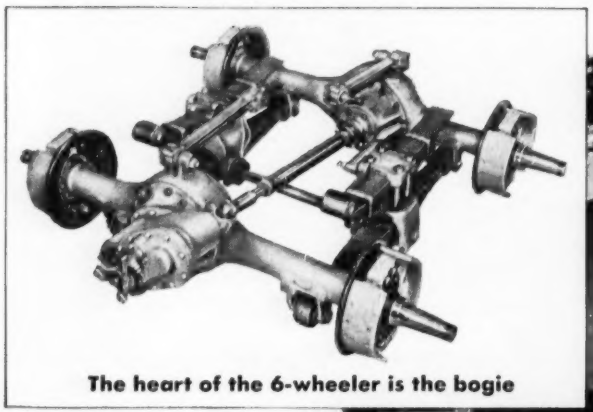
INTERNATIONAL LEADS 6-WHEELER FIELD



The heart of the 6-wheeler is the bogie

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your best buy

Performance proved. International RF-210 Series, GVW ratings, 37,000 to 45,000 lbs. Gasoline, LPG or diesel power.

"Tough Job" engineering has made International Trucks the heavy-duty sales leader for 21 years. International 6-wheelers give you proved performance PLUS the famous International bogie with the third differential.

INTERNATIONAL BOGIE ADVANTAGES

The third differential and power divider allow each wheel to rotate independently. There is practically no tire scuffing, "axle fight" or power loss. Perfect matching of tires is unnecessary. Fuel consumption is lower. Under adverse conditions, the third differential can be locked out, giving positive traction to both axles.

Abnormal tire wear eliminated because International bogie design *always* keeps wheels parallel to frame.

Reduces road shock by 50%. "Walking action" design keeps chassis frame and body level while bogie "walks" over obstructions and levels out the road.

Extra strength without extra weight. More payload per pound of chassis weight results from elimination of unnecessary dead weight. Strength is concentrated where needed.

Load stresses equalized. Load is carried from the frame to the axles at *four* points.

Compare performance . . . value . . . and price. Get all the facts on International 6-wheelers—*proved* for top performance and greater operating economy—from your International Dealer or Branch today.

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23 NEW 6-WHEEL MODELS

GVW ratings, 22,000 to 90,000 lbs. Engines from 130 to 356 horsepower. Choice of gasoline or LPG fuel systems. Diesel engines available for models with GVW ratings of 30,000 lbs. and over. Transmissions, axle ratios to meet any requirement. America's Most Complete Truck Line—168 basic models from ½-ton pickups to 90,000 lbs. GVW off-highway models.

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Here's MORE PROFIT for YOU!

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USE WOLVERINE ELECTRIC-WELDED STEEL TUBE FOR WET-HEAT APPLICATIONS

. . . AN OUTSTANDING DEVELOPMENT

. . . FOR USE IN CLOSED SYSTEMS

. . . FOR LOW-PRESSURE NON-CORROSIVE LINES

New opportunities open to you! Benefits galore!

The time-consuming task of threading is eliminated; all joints can be quickly soldered instead, making a more substantial, leak-proof connection. No sizing is necessary since the clearance between the tube and fitting for solder space is predetermined. The same tools ordinarily used in making solder joints in copper lines are used in making these connections. This Wolverine welded steel tube is designed to be used in place of conventional pipe and not as a replacement for copper tube.

Wolverine electric-welded steel tube for wet-heat applications is made in sizes ⅛" through 2" nominal diameter and is sold through plumbing and heating wholesalers.

Available in analysis SAE 1010.

Wolverine has introduced this quality welded steel tube for this application in conjunction with Flagg malleable iron fittings and Scott malleable iron valves.

This illustration proves the remarkable strength of Wolverine electric-welded steel tube. Despite all the twists you see here, this piece of tube — made up of several sections of Wolverine electric-welded steel tube soldered together with Flagg malleable fittings — withstood a pressure test of 7500 p.s.i.

WOLVERINE TUBE DIVISION

of CALUMET & HECLA, INC.

Manufacturers of Quality-Controlled Tubing

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they're using
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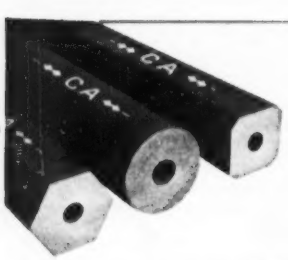
On this job, Crucible Hollow Drill Rods helped move 2,400,000 cubic yards of rock and make 118 major cuts. The largest cut was a huge bite 165 feet deep through solid granite.

That was the one-year record made on the 42 mile long Union Pacific Line Change, between Cheyenne and Dale Creek, Wyoming. To complete the job, largest since driving the famed golden spike joining East to West in 1869, took a combination of skill and teamwork by the Morrison-Knudsen Company . . . plus good equipment. And that's why Crucible Hollow Drill Rods were used.

Made to tool steel standards by the world's largest producer of special purpose steels, Crucible Hollow Drill Rods' *extra* quality means minimum rod breakage and fewer losses of valuable bits. You can be sure of long, uniformly dependable service, lot after lot, when you buy Crucible Hollow Drill Rods.



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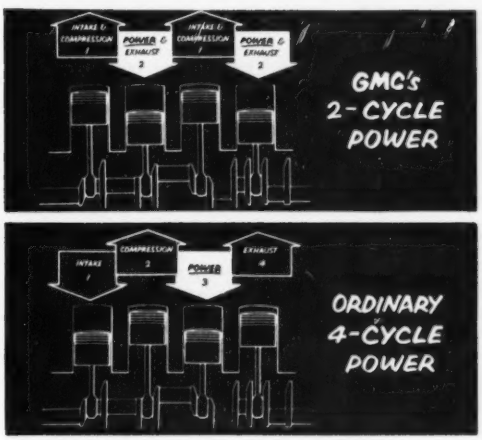
53 years of Fine steelmaking **HOLLOW DRILL ROD**

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.

REX HIGH SPEED • TOOL • REZISTAL STAINLESS • ALLOY • MAX-EL MACHINERY • SPECIAL PURPOSE STEELS

ROCK-BOTTOM OPERATING COST is the key to GMC Diesel's great popularity for construction work. They squeeze extra mileage from Diesel fuel. Over-all ruggedness means fewer repairs—less down time. These trucks last longer—earn more.

They've Got Plenty Riding on GMC Diesels



EVERY PISTON-STROKE IS A POWER-STROKE! That's the GM principle that gives 2-cycle GMC Diesel haulers the big edge over other trucks—all depending on ordinary 4-cycle power production. GMC's sustained power improves highway time—increases pull. And this trimmer, more compact engine design saves dead weight—increases payload capacity.

EVER wonder why top contractors give the nod to GMC Diesel trucks for the biggest—most important—jobs?

Main reason is their confidence in GMC's *extra-stamina engineering*. That's the extra might built into massive frames. The extra toughness in shock-smothering springs. The generously oversized axles. In fact, it's all-over ruggedness far beyond the needs of any job—in trucks rated up to 63,000 GVW-100,000 GCW.

Power To Spare, Too

These GMC's can not only take it—but dish it out. Even-gaited *2-cycle* Diesel engines pour it on for timesaving highway work. And they rate especially high in what engineers call "torque." That's power that becomes sheer brute force to propel your heftiest loads up steep grades—or through off-the-road muck and mire.

Drivers go for these big GMC's. They get the extra pull with less gearshifting. Airy "Six-Footer" cabs are home-comfort cushioned. And ball-bearing steering makes handling a snap.

Too good to be true? Let your GMC dealer show you the model that will deliver the goods on your next big job. How can you lose?

GMC
DIESEL TRUCKS
19,500 GVW to 100,000 GCW

GMC Truck & Coach Division of General Motors

HIGHWAY BRIDGE REINTEGRATED WITH "GUNITE" BY CEMENT GUN CO.

The photograph above shows extensive "GUNITE" repairs being made to a highway bridge, which crosses over two railroads, in a large Southern city.

In the course of the repairs it was necessary to jack up the bridge, remove one pier in its entirety and rebuild it.

"GUNITE" repairs were necessitated because of low grade, original concrete with subsequent disintegration due to freezing and thawing.

This structure was built out to original lines at the various locations of disintegration and is now being reintegrated with "GUNITE" for its full length.

Money saving applications of "GUNITE" on various construction and repair jobs are completely pictured and described in our Catalog 2400. A request, on your letterhead, will bring your copy by return mail.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES – ALLENTOWN, PA., U. S. A.

MANUFACTURERS OF THE "CEMENT GUN"

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● Wood exposed to moisture and air at normal temperatures *always* faces the hazard of decay—unless treated. Since a pressure treatment, selected according to the proposed use, multiplies wood service life many times, it's highly profitable. Write for Bulletin SW4 on pressure treatment.

KOPPERS

KOPPERS COMPANY, INC.
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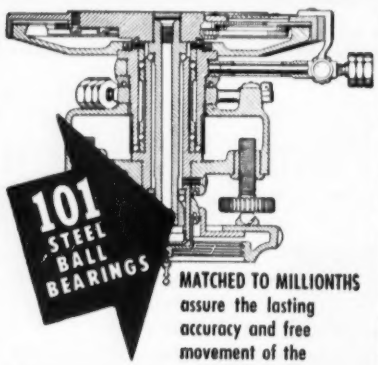
Pittsburgh 19, Pa.



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READER COMMENT

Wall-panel replacement

SIR: Your interesting article on the two-story aluminum panels for the exterior of 99 Park Ave., New York City (ENR Aug. 13, p. 43) gives rise to the question of replacement of such panels in fire or accident.

Should an airplane strike the side of this building destroying 12 of the two-story panels, could these be replaced without removal of undamaged panels and yet provide the necessary interlocking?

What would be your estimate of the number of panels that would necessarily be removed to preserve the interlocking feature?

F. P. O. POTTER
Manager
Fire Special Risk Department
The Automobile Insurance Co.
of Hartford, Conn.

[EDITOR'S NOTE—General Bronze Corp., fabricator and erector of the panels, reports that during construction a crane boom damaged one panel, necessitating its replacement. This required loosening of the panels on either side, but not their removal. Because the panels are flexible enough, the damaged panel was easily taken out and a new one slipped into place. Hence, if the 12 panels damaged by an airplane are at the same level, only two extra panels need be loosened to permit the 12 to be replaced.]

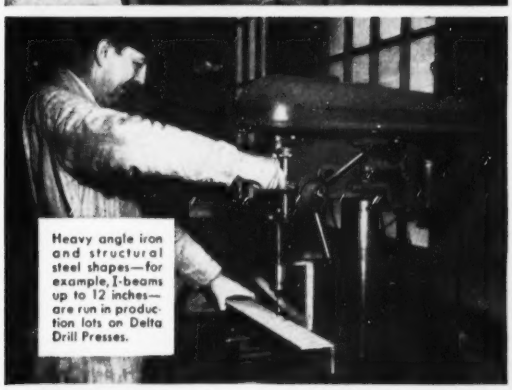
Airbases abroad

SIR: Your remarkable article, "JCA—New command post of Military Construction in France". (ENR June 11, 1953, p.33) is a document that bears witness to the thoroughness of information and impartiality of the author. However, for the benefit of interested readers, I should like to comment on the statement (p. 34, 3rd col) that "The effort would meet head-on the *desire and habit* of French contractors to use designs of their own." This may appear to be so to foreign observers, but is in fact the consequence of the basic legislation of the "Civil Code" unchanged since Napoleonic times.

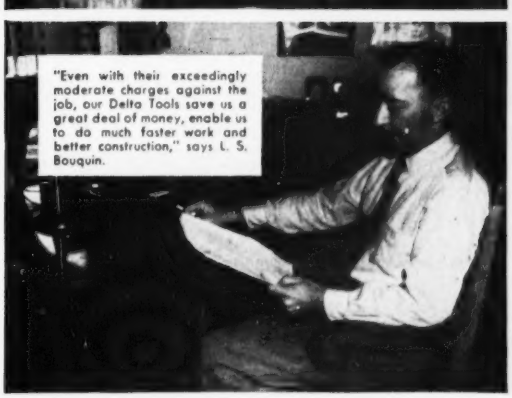
The Civil Code (Art. 1792 and 2221) specifies (in terms of the legal and technical terminology in use at the end of the 18th century) that the "Architect and Contractor are jointly responsible for the good service (implying stability) of any construction during the first ten years after completion of the construction." This has

Building bleacher seats in gymnasium of school at Marienville, Pa., the Delta 10-inch Unisaw does all the cutting—with labor saving of as high as 50%.

This Delta Saw-Jointer in the warehouse shop has paid for itself many times over. Here E. J. Lutz, warehouse superintendent, processes lumber for delivery to the job



Heavy angle iron and structural steel shapes—for example, I-beams up to 12 inches—are run in production lots on Delta Drill Presses.



"Even with their exceedingly moderate charges against the job, our Delta Tools save us a great deal of money, enable us to do much faster work and better construction," says L. S. Bouquin.

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says L. S. Bouquin, Oil City, Pa.,

Contractor executive

". . . For example, our Delta 10-inch Unisaw — used on-the-job for many operations—is charged against the job at $1.75 per hour, a break-even basis. Considering the enormously increased speed and multiplied output against labor rates, you can figure fat savings—at least 50 per cent. And we get not only a faster job but a better one.

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Other Delta tools used every day by Bouquin include a saw-jointer, drill press and band saw. The saw-jointer gets liberal use on mill work and cabinets; and the band saw saves countless hours on ornamental projects, arch cuts and brackets. The Delta drill press makes bolt holes, and drills metals in maintenance and production work. These tools are charged against the jobs at comparable rates. "They are indispensable," says E. J. Lutz, in charge of maintenance—"have paid for themselves many times over."

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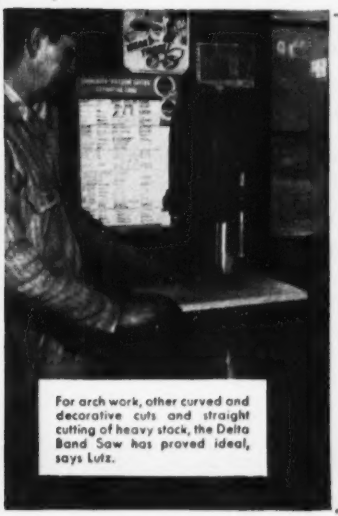

For arch work, other curved and decorative cuts and straight cutting of heavy stock, the Delta Band Saw has proved ideal, says Lutz.

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READER COMMENT

meant in the past that the introduction of new techniques (steel construction in the 19th century and reinforced concrete in the 20th) has in France been the burden and responsibility of the contractor. The architect, being as a rule less financially powerful, has confined himself to other sections of the job, mostly architectural design, supervision, etc., while the engineer acted as the consultant (or employee) of the contractor. The implications of this basic divergence in the legislation of France and other countries as regards construction have been and are the cause of irritating misinterpretations against which the undersigned has been struggling for many years.

The resulting loss of energy and mutual confidence could be easily avoided provided the right information is supplied to contractors or engineers who plan to embark in foreign work in countries under French legislation.

G. L. BLANCHARD
Intercontinental Technical Enterprises, Inc.
Chicago, Ill.

CALENDAR

Structural Engineers Association of California, The Ahwahnee, Yosemite National Park, Oct. 8-10.

National Conference of Industrial Hydraulics, Hotel Sheraton, Chicago, Oct. 8-9.

American Concrete Pressure Pipe Association, convention and meeting, Ponte Vedra Inn, Ponte Vedra, Fla., Oct. 8-10.

Concrete Reinforcing Steel Institute, semi-annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., Oct. 12-17.

Federation of Sewage and Industrial Wastes Associations, Municipal Auditorium, Miami, Fla., Oct. 13-16.

National Reclamation Association, Mapes Hotel, Reno, Nev., Oct. 14-16.

Engineers Council for Professional Development, Hotel Statler, New York City, Oct. 14-17.

American Society of Civil Engineers, annual meeting, Hotel Statler, New York City, Oct. 19-23.

Society of American Military Engineers, semi-annual convention, George Washington Hotel, Jacksonville, Fla., Oct. 25-26.

American Public Works Association, annual public works congress and equipment show, Roosevelt Hotel and Municipal Auditorium, New Orleans, La., Oct. 26-29.

California Section, American Water Works Association, Palace Hotel, San Francisco, Calif., Oct. 27-30.

American Concrete Institute, Southwestern regional meeting, Rice Hotel, Houston, Tex., Oct. 29-30.

National Council of State Boards of Engineering Examiners, annual meeting, Plaza Hotel, San Antonio, Tex., Oct. 29-31.

Fourth annual conference on coastal engineering, Council for Wave Research, Del Prado Hotel, Chicago, Ill., Oct. 29-31.

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THE CONSTRUCTION WEEK

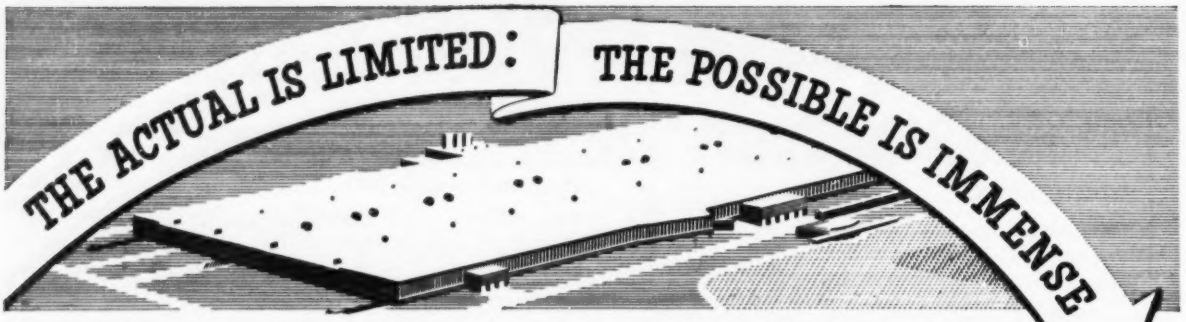
- **Hard facts and figures**—A "park-down strike" staged by California log truckers last summer to protest load limit laws (ENR July 16, p. 22) seems to have boomeranged. It led to a state highway maintenance study, which has come up with these findings: For the five fiscal years ending 1951-52 average upkeep costs of roadway surfaces in three northern logging counties were $1,526 per mile as against $591 per mile for the entire state system. In 1953, maintenance costs for the three counties averaged $327 per mile for sections rated as good or excellent; $1,610 per mile on sections poor to fair.

- **History-making dredging job**—Inland Steel Co. soon will begin what may be history's largest hydraulic dredging operation. Lessee of the third major iron ore deposit at Western Ontario's Steep Rock Lake (ENR Nov. 24, 1949, p. 140), Inland has made a $25-million contract with Construction Aggregates Corp., Chicago, to remove 160,000,000 cu yd of silt from the rich ore vein. This yardage compares with 100,000,000 cu yd in hydraulically placed Fort Peck Dam. Two dredges, which will be built at the site during the next 18 months, will take almost five years to complete the excavation. Scheduled to begin operations in 1960, the mine is expected to yield 3,000,000 tons annually when fully developed.

- **Ohio's water shortage**—Critical water shortages in northern and southern Ohio have led Gov. Frank J. Lausche to ask the state's water resources board to consider launching a survey to find out whether it would be worthwhile to pipe water from Lake Erie and/or the Ohio River or better to build reservoirs in the upper reaches of both watersheds. Preliminary reactions: Certainly in some places it would be feasible to pump water from Lake Erie. Reservoirs wouldn't work as well in northern Ohio as elsewhere because of clay in the soil. For most of southeastern Ohio best source of water probably would be in watersheds. Western Ohio could have shallow reservoirs that drain into storage areas further underground, holding back rain water long enough for it to drain into wells without runoff.

- **San Francisco Bridge repairs**—Alterations costing $3.5-million are to be made on the San Francisco-Oakland Bay Bridge. Work will include improvement of Yerba Buena and Treasure Island connections, lower deck signal lights and expansion of toll plaza facilities. Funds are available from bonds sold by the California Toll Bridge Authority.

- **Phoenix got stung**—The Phoenix, Ariz., traffic department is looking for different quality road striping paint. Its last 1,000-gal lot proved useless when it set too fast under the desert heat, clogging the striping machine and drying before glass reflector beads could be sprinkled on it. And, to add to the woes, the paint wore off in a matter of days anyway.



NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT

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WELDING ADAPTED TO 420′ TEMPORARY STEEL TRESTLE COMPLETES RIVER CROSSING IN 2 MONTHS

TAKING advantage of the ability of arc welding to speed construction, engineers of this Class I Road replaced a washed out truss bridge using standard rolled sections with plate stiffeners and braces welded in place.

Fig. 3. Temporary Steel Trestle *built by The Erie Railroad at its Chemung River Crossing has 14 spans which vary from 24′ to 36′ center to center of bents. Spans are supported on double 3 pile bents.*

WELDED REPAIRS SPEED MAINTENANCE SAVE STEEL ON REINFORCING VIADUCT

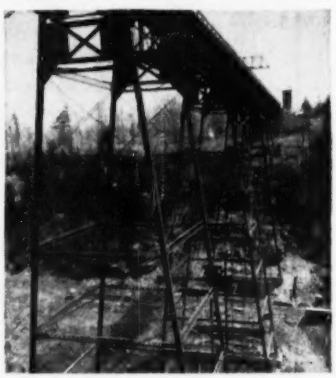

Fig. 1. 818 Foot Long Viaduct *of Erie Railroad across Genesee River at Portage, New York, is reinforced by addition of cover plates arc welded to the inside face of tower columns. Original lattice bars were removed on inside face of columns and the additional plate fillet welded to outstanding legs of tower angles. Plug welds are used in the open holes in tower angles. Welding is done with Lincoln "Fleetweld 5".*

Fig. 2. Welding End Batten Plates *after new strut is assembled to column. Entire job required only 275 tons of steel, was finished in less time with arc welding than possible otherwise.*

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WASHINGTON OBSERVER

Next year's big civil works authorization bill is moving along in the congressional committees that will come up with the initial okay. This is the big multi-million-dollar "pork barrel" measure in which Congress approves the rivers-and-harbors and flood control projects it thinks should be carried out. Appropriations, of course, are voted separately and later by the appropriations committees.

List of projects "eligible for consideration" is being looked over.

It includes 28 projects costing $1 million or more, and about 50 others of lesser size.

•

Here's how the totals run, adding up the projects now deemed to be eligible: rivers and harbors, about $142 million; Army Engineers flood control, about $327 million; Department of Agriculture flood control, about $460 million. That makes a grand total of $930 million.

The final bill won't be that large, of course. But even if it runs larger than anticipated now, it will be well below the $1.8-billion spending the Democrats authorized in 1950.

You can be sure, though, it will be well above 1948 Republican bill in which they okayed only $16 million for Truman.

•

Actually, there may be some "de-authorizing" of the big backlog of projects which, for one reason or another, have never gotten started. The Republicans may also try to sharpen up the criteria by which projects are chosen, and on just how they are to be paid for.

•

Construction of Spanish air and naval bases won't be held up for lack of money (see page 22). Defense Department has plenty of unobligated funds it can tap for such construction. Selection of actual sites of air bases is about only major decision yet to be made. Work, however, will definitely not be on the "crash" basis that prevailed on the Moroccan base.

•

Taft-Hartley fight stays hot despite Durkin's resignation. Employers are still concerned that the Eisenhower team might come up—again—with weakening amendments to the law. And they are keeping up the pressure on the President, his aides, cabinet officers, and congressmen.

House labor chief McConnell says 11 of the 19 amendments have been backed by Republicans in the past. This is the kind of thing that is keeping the T-H fires going.

Building trades of AFL stand fast on this: The federation should not go along with any T-H amendments if they don't provide for nullifying the "right to work" laws of 14 states.

•

A super-pipeline to carry oil products from the Gulf to Newark is getting a going-over in Washington. The National Security Council and the Petroleum Administration for Defense are giving the construction project serious study. The Justice Dept. has been asked to rule on the antitrust angles involved.

The proposal is for a 36-in. all-purpose line. The government would probably have to underwrite some of the cost; American Pipeline Co. proposes to build the line if the government would pick up $60 million of the estimated $156-million cost, and give 100% fast tax writeoff. A decision won't be coming fast; barge operators already are protesting.

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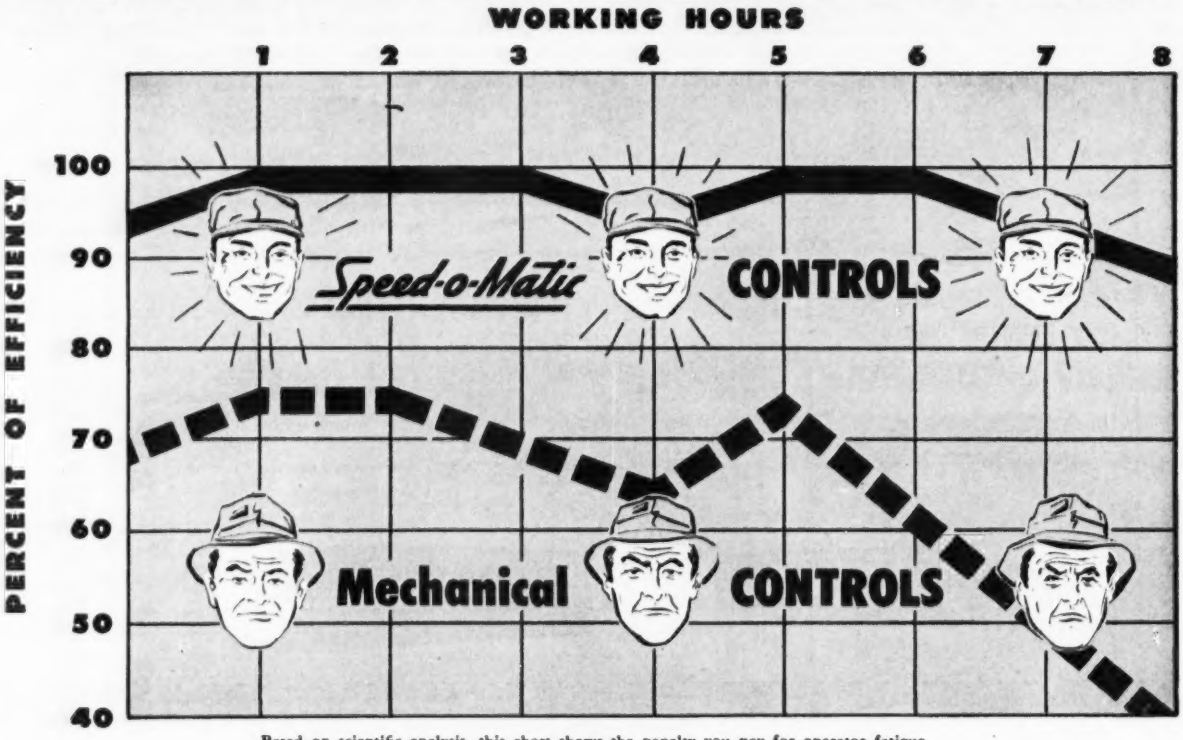

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This system's simplicity and freedom from mechanical linkage cuts overall maintenance and minimizes the need for clutch adjustment. Some Link-Belt Speeder owners report using these outstanding rigs for months without a clutch adjustment.

For details on the Link-Belt Speeder line of crawler, truck and wheel-mounted models, write for catalog 2373.

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Cedar Rapids, Iowa

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1954 heavy construction seen falling off only about 2½%

ENR forecasts higher dollar volume of state, municipal awards to offset expected dip in federal, private work

No more than possibly a 2½% dip in the dollar volume of heavy construction is seen for next year, on the basis of a preliminary forecast by ENGINEERING NEWS-RECORD. A 4% increase in state and local public works is counted upon to help offset a predicted 6% decline in both federal and private awards.

Because the upward movement of costs is slowing and bid prices are running below their late 1952 peaks, it is quite likely that physical volume of heavy construction in '54 may continue to move along at about this year's level.

• **This year's progress**—The heavy construction contract total through September is 7% behind the figure for that period last year, compared with a 4% lag forecast by ENR at the beginning of 1953 (ENR Feb. 19, p. 53).

Partly responsible for a lower dollar volume of work than originally estimated is the fact that many heavy construction contracts have been let at bargain prices under the growing pressure of competition.

Making the big difference was the fact that federal construction contracts were down 71% for the first nine months of this year as compared with an estimated decline of 41%. But, state and municipal awards are up 20% instead of 17% as forecast. Private construction is up 26% instead of a predicted 5%.

Exclusive of AEC contracts, awards for the first nine months of this year actually are 14% ahead of the corresponding period of '52. AEC let contracts totaling $2.3 billion last year, compared with $59 million thus far in '53. From the standpoint of non-AEC heavy construction, the 14% increase in the first nine months is double what was forecast at the beginning of the year. However, the unusually heavy volume of contract awards in the final quarter of last year is not likely to be repeated this year, and the predicted 7% increase in non-AEC construction work probably will stand up.

• **Local public works outlook good**—According to ENR's forecast study, $13.9 billion in heavy construction should go under contract in 1954. This would include $7.7 billion in private construction, $5.1 billion in state and municipal works, and $1.2 billion in federal jobs.

This forecast is predicated on estimated increases in dollar volume of construction in these categories: sewerage, up 8% to $450 million; bridges, up 2% to $650 million; streets and roads, up 10% to $1.8 billion; public buildings, up 5% to $1.7 billion; public unclassified, up 1% to $800 million; and commercial building, up 6% to $1.3 billion.

It is predicted that these increases will be offset by considerable declines in public housing and in earthwork, irrigation and waterways. Awards in each of these two categories are estimated to drop 21% to $300 million. It is also estimated that waterworks will be down 6% to $230 million; private mass housing, down 11% to $3 billion; industrial building, down 5% to $2.5 billion; and private unclassified, down 7% to $850 million.

The Administration's economy pledges and intensive re-appraisal of proposed and current federal construction projects make further cuts in Washington's spending inevitable.

As to private housing developments, it already has become apparent that the day of easy sales is over. But, of course, there's a huge rental and modernization demand.

Fortunately, local public works projects appear to offer contractors an opportunity to take up some of the slack caused by the federal cutbacks. The mushrooming toll-road movement, for example, will make a noteworthy contribution to 1954 construction activity, as the plans of turnpike commissions mature into the contract stage. Toll bridge authorities, too, are inclined to speed urgent traffic improvements that would have to be delayed indefinitely if dependent on normal state appropriations.

The heavy backlog of municipal projects reflects a desperate need of many cities to match their population and industrial growth with adequate school, sewer and water facilities and traffic improvements.

• **Outlook for financing**—It seems

1953-54 PRELIMINARY FORECAST OF HEAVY CONSTRUCTION

(Based on contract awards as reported by Engineering News-Record)

	Actual 1952	Revised estimate 1953	Preliminary forecast 1954	Estimated % changes '52-'53	'53-'54
	(In millions of $)				
Total Contract Awards	**$15,689**	**$14,337**	**$13,980**	**−9**	**−2½**
State and municipal	4,076	4,900	5,100	+20	+4
Federal	4,501	1,250	1,180	−72	−6
Private	7,112	8,187	7,700	+15	−6
Public works	**8,577**	**6,150**	**6,280**	**−28**	**+2**
Waterworks	231	245	230	+6	−6
Sewerage	304	416	450	+37	+8
Bridges	413	636	650	+54	+2
Highways	1,397	1,673	1,850	+20	+10
Earthworks, waterways	496	380	300	−23	−21
Building, excl hsg.	4,293	1,618	1,700	−62	+5
Housing	606	382	300	−37	−21
Unclassified	855	790	800	−8	+1
Private	**7,112**	**8,187**	**7,700**	**+15**	**−6**
Mass housing	3,002	3,360	3,000	+12	−11
Commercial building	844	1,271	1,350	+57	+6
Industrial building	2,722	2,646	2,500	−3	−5
Unclassified	545	910	850	+67	−7

likely that the cost of borrowing money in 1954 will be no higher, and perhaps may be lower for a substantial part of the year, than it has been in recent months. There will be enough money available in 1954 to finance the volume of construction forecast by ENR.

For even though business activity may drop off somewhat, investors will continue to have large sums to invest. Part of this money will come in the form of repayments and amortization on bonds and mortgages, and interest payments on investments. Part will be new funds, for example, premiums on life insurance, new purchases of savings and loan shares, and deposits in savings and commercial banks.

A mild recession would have very little effect on the amount of money available for construction. For past experience shows that the volume of money flowing into the hands of institutional investors declines quite gradually as business activity slows down.

New AIA-AGC provision covers bidding mistakes

A revised edition of the guide to bidding procedure, published jointly by the American Institute of Architects and the Associated General Contractors of America, contains a new provision for dealing with mistakes in bidding.

The new provision, essentially in line with a resolution adopted at the recent mid-year AGC board meeting (ENR Sept. 24, p. 23), comes as an insertion under Section IV, "bidding," immediately following "award of contract," subparagraph (I) it reads:

"If after bids are opened, the low bidder claims that he has made an appreciable error in the preparation of his bid and can support such a claim with the owner and the architect, he should be permitted to withdraw his bid. . . .

"Under no circumstances should a bidder be permitted to alter his bid after bids have been opened, except in accordance with the first sentence of the following item (J), entitled 'changes.'" ("Minor changes required before signing of contract should be negotiated only with the selected bidder.")

The new edition of "A Suggested Guide to Bidding Procedure" may be obtained from A.I.A. at 1735 New York Ave., Washington, D. C., as A.I.A. Document 333, and from A.G.C., Munsey Building, Washington 4, D.C., by title. No charge for single copies; quantity prices may be arranged on application.

Bureau of Yards and Docks is slated to handle Spanish bases construction

Two naval and at least four air stations authorized; architect-engineer, prime contractor to be American

The Navy Bureau of Yards and Docks is expected to be designated as the construction agency for U. S. military bases in Spain, which will include two on the seacoast for the Navy and at least four at inland sites for the Air Force.

A Madrid communique accompanying the signing of the U. S.-Spanish agreement last week said that the sites will be agreed upon by representatives of the two governments. Apparently the defense protocol of the three-part agreement carried no unpublicized annex specifying location of the bases.

Weekend reports on the prospective sites correspond closely with the likely locations spotted in ENGINEERING NEWS-RECORD's article on page 33 of its May 14 issue. The only addition is a possible airbase on the island of Minorca in the Mediterranean, while two apparently dropped from the favored list are at Cuidad Real and Zaragoza.

Other Air Force sites still high on the list are Madrid, Sevilla, Barcelona, Albacete and Valencia. The Navy presumably is to build its bases at Cadiz, west of Gibraltar, and at Cartagena, on the southwest Mediterranean coast of Spain.

• **U. S. to hold overall contracts**—Air Force-Navy dickering in recent months has pointed to selection of the Bureau of Yards and Docks to handle the airbase construction work. With the bureau there to build the Navy bases, it is logical that the same agency should handle the Air Force program.

Should that arrangement go through, the Bureau of Yards and Docks would handle the negotiation and award of both the architect-engineer and the general construction contracts. American firms almost certainly will win the awards for both types of overall contracts. But the understanding with Spain requires that those top American contractors for each project sublet the bulk of their work to Spanish firms.

Thus the American architect-engineer will employ Spanish engineers and architects to perform as much as possible of the work in Spain, including the converting of American plans to the metric system. The same way, the American prime construction contractor will award subcontracts to Spanish constructors for all the work that can be put in place by Spaniards.

The American firms will be in top administrative control of the jobs. They will supervise all operations and will be responsible for performance and quality of the work.

Cost to the United States of bases to be built in Spain is expected to run about $200 million.

Decision as to how work in Spain will be handled and who will administer it rests with Air Force Secretary Harold E. Talbott. Defense Secretary Charles E. Wilson designated the Air Force Secretary as executive agent for the entire Spanish base program, both AF and Navy.

Navy's Bureau of Yards and Docks has done overseas work for the Air Force on Guam and is now doing AF jobs on down-range sites for guided missiles off the coast of Florida, as well as some Aleutian projects.

• **Special organizational setup**—If the Air Force Secretary names the Navy, as expected, to do all the work in Spain, the Bureau of Yards and Docks will set up a complete construction organization there.

At the head of the new organization in Spain will be a director of construction. On each project, there will be a resident construction officer.

If present practice holds the Air Force would place an AF Installations Representative with the director of construction in Spain, just as it now has an AFIR for the Moroccan airbases working alongside the Mediterranean division engineer of the Corps of Engineers, U. S. Army. AFIRs report to the Directorate of Installations, U. S. Air Force, referring specific problems to various divisions of the directorate, such as architecture-engineering, construction, and real estate.

After its construction agency is designated, the AF Directorate of Installations furnishes criteria, standards and specifications for the work to that agency. The directorate also names a representative to work with the agency in negotiating and awarding the architect-engineer contract or contracts. From there on, the directorate and its representative consult with the construction agency and the A-E contractor as needed.

In the same way, the AF directorate works with the construction agency on the preparation and award of the prime contracts for AF projects.

State, county road engineers get tips on how to cut costs

First national conference on local highway problems, under ARBA auspices, expected to become annual event

J. Roland Carr
Associate Editor

How to stretch the construction dollar for low-cost roads was discussed from all angles last week at Lake Delton, Wis., where some 500 state and county engineers from 23 states inaugurated what probably will become an annual national highway conference.

Addressing the two-day conference, sponsored by the County and Local Roads Division of the American Road Builders Assn., were ARBA officials and representatives of equipment manufacturers and materials producers. In addition, 23 technical papers were delivered.

• **Staggering traffic potential**—Just how dark the prospects are of keeping road construction abreast of traffic demand was crystallized by Robert M. Reindollar, president of ARBA. He estimated that within the next 15 years total vehicle registration (automobiles, trucks and buses) will reach the staggering total of 85,000,000 compared with 53,000,000 at the end of last year. During the same period, he said, truck registration may reach 20,000,000, which would be more than twice the number using our highways today.

Recognizing that toll highways are playing an important role in the current traffic situation, Reindollar pointed out that even the most optimistic estimates of the potential for this type of construction would only "scratch the surface" in the consideration of the national problem of adequate highway transportation. "Latest figures," said Reindollar, "disclose that in nine states, there are 840 mi of toll highways in operation today. These were constructed at a total cost of $644 million. Now under construction in four states are 1,030 mi of toll highways to cost $1.2 billion, while 480 mi have been authorized, at an estimated cost of $424 million." "In addition," declared Reindollar, "880 mi of toll highways have been projected. While this adds up to nearly 3,000 mi of toll highways either in operation, under construction, authorized or projected, the probable extent of all toll highway construction that can be successfully financed by revenue bonds is not more than 8,000 mi."

Reindollar stressed the fact that every effort must be made to provide ample funds for a comprehensive program to obtain all-weather roads in rural areas. At the same time, he warned that more funds must be expended on heavily traveled primary routes to relieve congestion which, in many instances, amounts to complete stagnation in urban areas.

Similar views on the national highway problem were expressed by General Eugene Reybold, executive vice president of ARBA. He told the county engineers that their coordination with the state highway departments is indispensable in getting necessary local road improvements planned and construction started. General Reybold assured the conference that the improvement of farm-to-market roads will be earnestly considered in the next session of Congress. There are 438,000 mi of federal aid secondary highways of which 57% are under county control. Most of these are farm-to-market roads, but 265,000 mi need improvements estimated to cost $85 billion.

The well-rounded program of technical papers covered nearly every phase of low-cost road construction and maintenance. Considerable attention was centered on soil stabilization and compaction, drainage, base and surface course construction, pavement patching, snow removal and ice control. Several speakers gave detailed accounts of such work being done under their supervision.

• **More highways per dollar**—Ed Holt, general sales manager, Barber Greene Co., declared that "considerable money is being spent unnecessarily on highway construction as a result of unrealistic specification requirements, over-design, improper use and selection of equipment, and the failure to use local construction materials to their best advantage. Since highway funds are inadequate, our biggest problem is to stretch highway dollars to get the most miles of road from them," declared Holt. "One way to do this is to make certain that specifications are as simple and precise as possible to achieve the desired results. Frequently, certain specification control or design requirements add far more to the cost of construction than the increased quality justifies."

Construction specifications obviously should contain an exact description of the end result required, declared Holt, but when they go on to stipulate the type of equipment and how it is to be used, the contractor is restricted from using his own initiative to lower costs. This generally results in a more expensive means of construction than is necessary.

R. P. Jones, manager, Soil Stabilizer Division, Harnischfeger Corp., assured the conference that in the field of soil stabilization, modern equipment and construction methods provide accurate controls through which the engineer can obtain results in the field comparable with those obtained by laboratory methods. This modern equipment, he said, offers accuracy, speed and economy in processing all types of stabilization now in commercial use under a wide range of soil conditions.

• **Maintenance equipment**—Maintaining the 1,141,000 mi of unpaved and the 1,180,000 mi of paved county and local roads continually calls for more mechanization and better equipment, said C. J. Haring, general sales manager, J. D. Adams Manufacturing Co. With the demand for faster surface maintenance of graveled roads and for snow removal, new developments point to heavier motor graders with more diesel power, more operator comfort, and more operational features such as better lights and two-way radio communications. Some of the newest of these machines, said Haring, weigh more than 25,000 lb. They are powered with diesel engines developing 125 hp or more and are capable of maintaining speeds of 6 to 8 mph. Although they are visualized as a contractor's machine, counties have been purchasing a large percentage of those sold to date, he said.

• **Resolutions**—In resolutions adopted at the closing session the conference expressed keen interest in the holding of a road show by the equipment manufacturers; urged the continuation of the current federal aid highway program at a level commensurate with existing requirements, giving due consideration to the vast deficiencies existing in the secondary system; expressed grave concern over the drastic curtailment of the CAA airport program; and went on record as favoring a national highway conference in 1954.

The two-day conference was in charge of Ben. F. Ostergren, managing director of the ARBA's County and Local Roads Division. A. J. Thelen, executive secretary, Wisconsin County Boards Assn., was the local chairman.

Key construction labor cases facing new session of U.S. Supreme Court

Several labor cases involving the construction industry are among the key issues facing the new term of the U.S. Supreme Court opening Oct. 5. And, too, there's a big construction stake in the outcome of the celebrated segregation cases, which overshadow all other items on the docket in political and social significance.

The South is caught in the early stages of a broad and expensive school construction program. Hundreds of millions of dollars are tied up in state aid plans—many already in construction, others approved and ready to go.

Big question is whether the strides southern school planners have made in equalizing Negro and white school facilities sway the court enough to uphold the "separate but equal" doctrine.

• **T-H vs NLRB cases**—Almost certain to come up this year is an issue sidestepped last year in the Ledbetter case (ENR Nov. 20, p. 31). That is: Can a state court enjoin unfair labor practices described in the Taft-Hartley Law or does the National Labor Relations Board have exclusive jurisdiction over such violations? The broad issue is the supremacy of federal over state labor law. It differs in that way from the case last year in which the high court upheld a state court injunction against picketing under a "right-to-work" law (ENR March 26, p. 30).

One case assigned for argument early in the new term attacks a decision by the Pennsylvania Supreme Court, which held that it lacked jurisdiction to stop picketing at the Central Storage and Transfer Co. in Harrisburg by an AFL teamsters local. The Pennsylvania court ruled that, though the picketing violated a state law since it also violated the Taft-Hartley Law, the NLRB was the proper place for the employer to take his complaint.

A decision just the other way by the Alabama Supreme Court is being appealed by the AFL Building Trades Council. There, the state court granted an injunction to halt picketing against the Kinard Construction Co. The picketing was designed to coerce union membership—a practice prohibited by T-H—on Kinard's federal housing project in Russellville.

Kinard went into state court for an injunction, arguing it would suffer "irreparable damage" if the picketing continued. As in the Ledbetter case, the state courts ruled for the employer, despite arguments by the union that NLRB was the only place private parties could get such injunctions.

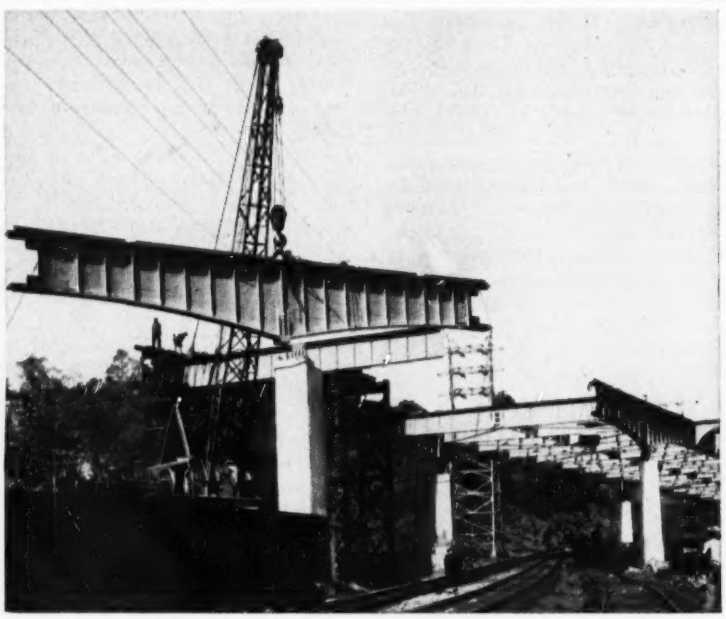
The Kinard case, if it is accepted by the Supreme Court, probably would end in a final decision. While the Ledbetter case was orally argued, it was later dismissed on jurisdictional grounds because only a temporary injunction had been granted. But Kinard got a permanent injunction, so case would be decided on its merits.

Another case not yet accepted by the court attacks even the application of Taft-Hartley unfair practice provisions against unions and employers in the building and construction industry. It grows out of a ruling by NLRB in that perennial controversy raging between the AFL machinists and carpenters unions over millwright work—installation and repair of plant machinery. NLRB ruled the Swinterton and Walberg Co., general contractor on an installation job in a new General Foods processing plant in San Leandro, Calif., violated T-H. The contractor, bound by his local contractors association agreement with the carpenters, refused to hire AFL machinists for his millwright work because they weren't members of the carpenters union and hadn't been referred by the carpenters. The Ninth Circuit Court of Appeals in California upheld NLRB.

• **Litigation over pre-glazing**—The Joliet, Ill., Contractors Assn. is appealing NLRB and lower federal court rulings upholding the AFL glaziers ban on pre-glazed building materials (ENR July 17, p. 34; Mar. 19, p. 30).

This particular fight has been going on since 1948, ever since the union adopted by-laws forbidding members to work for any contractor who uses pre-glazed material or non-union labor to glaze his material on the job site.

The contractors say union enforcement of the ban amounts to secondary boycott strikes and concerted refusals to work. NLRB and lower court say the by-laws are legal—even though in effect they result in a boycott.



Viaduct job is exercise in coordination

Pencoyd Viaduct, on the outskirts of Philadelphia, presented Bethlehem Steel Co., several tricky problems in erection. Cranes had to duck overhead de-energized power lines. Erection had to be coordinated with movement of Reading Railroad traffic and earthmoving equipment. Steel deliveries were scheduled to eliminate need for storage space. Containing 2,651 tons of structural steel, the viaduct is an 11-span continuous girder bridge, 1,483 ft long, supported on concrete piers. Haunch sections of the girders, 10 ft deep over the piers, were erected in 60-ft lengths weighing 30 tons. Center sections, 7 ft deep, were erected in 80-ft lengths. The structure is part of the 17-mile long, four-lane Schuylkill Expressway, which connects the present terminal of the Pennsylvania Turnpike with urban Philadelphia. Work is under direction of E. J. Kinney, district engineer of the Pennsylvania Department of Highways. Conduit & Foundation Corp. of Philadelphia is general contractor.

Regulated stream flow helps solve pollution

The regulated discharge of water through dams on the upper Cumberland River is helping to solve some of the sewage pollution problems in Tennessee municipal areas.

"To alleviate the pollution hazard at Nashville, as well as other areas, the Corps of Engineers has guaranteed a minimum flow of 1,000 cfs throughout the dry seasons," declares Col. Gilbert M. Dorland, district engineer in Nashville.

Colonel Dorland estimated that without the upstream reservoirs, the flow at Nashville would now range between 400 and 500 cfs. And, because of the current dry spell the Army Engineers have been operating the Wolf Creek, Dale Hollow, and Center Hill projects in order to provide a minimum flow of 2,000 cfs and an average flow of 3,000 cfs during recent weeks.

The U. S. Public Health Service has estimated that, with regulated stream flow, a sewage treatment system now planned for Nashville will be adequate. Otherwise, additional treatment at great expense would be required, declares Public Health Service in a recent report that is entitled, "Evaluation of relations between pollution abatement and operations of water resources development on the Cumberland River."

Ohio Turnpike contracts now total $112 million

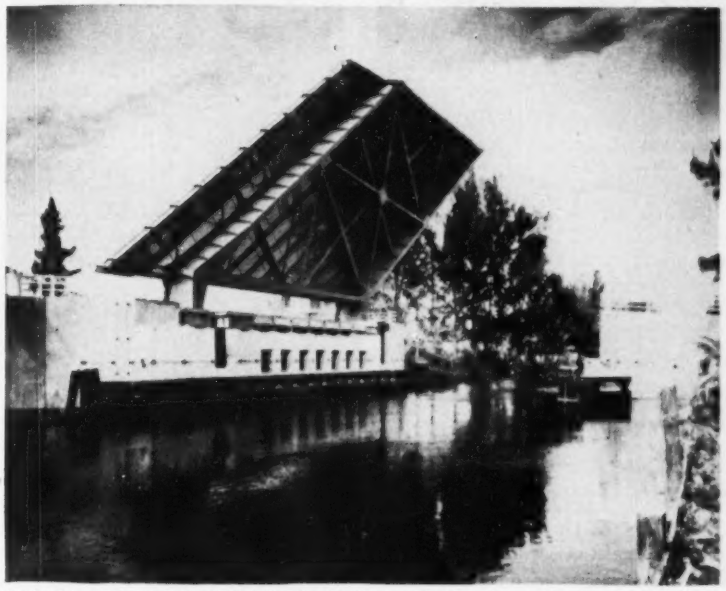
The Ohio Turnpike Commission awarded $21.2 million in roadway contracts and $1.7 million in structural steel contracts at a meeting last week, bringing its lettings to a total of $112.7 million or 53% of the estimated total cost of $211.8 million.

Last week's awards being 33 out of 62 construction sections under contract, including the four largest bridges. This is a total of 124.5 mi of the 241-mi turnpike.

The Frank Mashuda Co., Pittsburgh, was awarded a contract for 13.9 mi of roadway on a low bid of $11.1 million in competition with 13 other bidders.

Two contracts were awarded Peter Kiewit Sons Co. and Condon-Cunningham Co., of Columbus, Ohio, a joint venture, one covering 6.6 mi for $5 million and the other involving 8.8 mi for $5.1 million.

The Fort Pitt Bridge Works, Pittsburgh, was low bidder at $1.2 million for furnishing and fabricating 4.5 tons of structural steel for bridges and the Ernst Construction Corp. of Buffalo, N. Y., received a $449,975 contract for 1,882 tons.



WINNER IN THE MOVABLE BRIDGE CLASS of the 25th Annual Aesthetic Bridge Competition is a skew bascule span over the Miami Canal, Miami, Fla.

1952's most beautiful bridges chosen

Three highway bridges were selected last week as the most beautiful of their type opened to traffic in the U.S. during 1952. They included plate girder bridges in Texas and Tennessee and a bascule span in Florida.

A jury composed of three architects, an engineer and an art museum director selected the winners of the 25th Annual Aesthetic Bridge Competition, sponsored by the American Institute of Steel Construction. Three other bridges were given honorable mention by the judges.

No award was given this year in Class I, for bridges with spans of 400 ft or more.

The winner in Class II, for bridges with spans under 400 ft costing over $500,000, is the Neches River Bridge, Beaumont, Tex. A multi-span plate-girder bridge, it was designed by the Texas Highway Department and fabricated by the Bethlehem Steel Co.

In Class III, bridges with spans under 400 ft costing less than $500,000, the award was given to Morris Ferry Bridge, Franklin County, Tenn., a four-span continuous girder structure. It was designed by the Tullahoma District, Corps of Engineers, and fabricated by Nashville Bridge Co.

The Class IV award for movable bridges went to the skew bascule S.E. Fourth Ave. Bridge over Miami Canal, Miami, Fla., designed by Rader Knappen Tippetts Engineering Co., Miami, with Hardesty & Hanover as consultants. Nashville Bridge Co. was the fabricator.

Honorable mention in Class II went to the Delaware River Bridge, between Trenton, N. J., and Morrisville, Pa., a plate girder bridge designed by J. E. Greiner Co. and fabricated by American Bridge Division, U. S. Steel Corp. Honorable mention in Class III went to two structures: Pickens Bridge, Washington-Sullivan Counties, Tenn., a plate girder bridge designed by the Tennessee Valley Authority and fabricated by American Bridge Division; and a pedestrian overpass, on the East Memorial Shoreway, Cleveland, Ohio, designed by the Ohio Department of Highways, and fabricated by the Mount Vernon Bridge Co.

Judges were: Clair W. Ditchy, president of the American Institute of Architects, Detroit, Mich.; Harris Armstrong, Kirkwood, Mo., architect; J. Woolson Brooks, Des Moines, Iowa, architect; Dr. Daniel V. Terrell, Dean of College of Engineering, University of Kentucky, and newly elected president of the American Society of Civil Engineers; and Gordon Washburn, Director of Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.

BRIG. GEN. E. C. ITSCHNER: Slated for assistant chief of engineers, civil works.

BRIG. GEN. DON G. SHINGLER: To become North Pacific Coast Div. engineer.

Army Engineers to shift top posts

Brig. Gen. Emerson C. Itschner, North Pacific Division Engineers, Portland, Ore., will go to Army Engineer headquarters in Washington Nov. 1 to understudy Brig. Gen. Claude H. Chorpening for the post of Assistant Chief of Engineers for Civil Works.

Itschner will succeed Chorpening, who completes his four-year tour of duty in Washington next spring. Chorpening will receive his new assignment when his present tour ends.

At Portland, Ore., the new division engineer Nov. 1, will be Brig. Gen. Don G. Shingler now Chief of Staff at the Engineer Center, U. S. Army, Fort Belvoir, Va.

Itschner, 1924 West Point graduate, served in World War II as chief of Air Force construction for the Chief of Engineers and, later, chief engineer for the advance section of the Communications Zone in Europe. Before leaving Europe, he supervised the reconstruction of the Port of Cherbourg and the rehabilitation of the American sector in France, Luxembourg, Belgium and Germany.

After that war, Itschner served three years in the Office of the Chief of Engineers as Chief of Military Construction Operations. Then, in September 1950, he went to Korea as engineer for the First Corps. Itschner served there 14 months during the advance to the Yalu River and subsequent withdrawal. He was wounded in action near Seoul and received the Purple Heart. He has been division engineer, North Pacific Division, since April 1952.

Shingler came back to the U.S. in December 1949, after making a noteworthy record in the Middle East and Europe during World War II and after. He served from 1946 to 1949 as Chief of the Engineer Division, European Command Headquarters.

On his return, Shingler became division engineer for the Upper Mississippi River Division at St. Louis. He was away from that post for a time while he undertook a construction assignment for the atom-bomb tests on Eniwetok.

Shingler then served as Missouri River division engineer at Omaha from February 1951 to July 1952, when he was asigned to his present post at Fort Belvoir.

Army Engineers to join north, northeast offices

One of the first moves to consolidate Army Engineer field offices was announced last week. Effective Dec. 1, the North and Northeast districts will be pulled together into a single Northeast District, with headquarters at 80 Varick St., New York City, under Col. Morton Solomon as district engineer.

The present Northeast District handles construction of airbases in Greenland, while North District supervises design and construction of an airbase and supporting facilities in Iceland.

Consolidation will save about $400,000 a year, Maj. Gen. Samuel D. Sturgis, Chief of Engineers, said. It also will give the Iceland project the benefit of three years of Arctic experience acquired by the existing Northeast District of Greenland work.

$100-million mart proposed for N.Y.C.

Air rights over a part of the Pennsylanvia Railroad tracks in New York City have been optioned by Webb & Knapp, Inc., for a proposed $100-million, 20-story merchandise mart.

Site of the proopsed structure is an area bounded by Ninth and Tenth avenues, 31 and 33rd streets. It would provide floor sapce of between 6,000,000 and 7,000,00 sq ft—three times the amount in the Empire State Building.

According to William Zeckendorf, head of the realty investment and building organization, the option is the first step in a plan to develop the site with a merchandise mart and "showcase for U.S. products."

Arrangements for financing the structure hinge on completion of a contract with the federal government to lease one-third of the space for post office and parcel post facilities. There is a second possibility a somewhat similar transaction for the same amount of space on a long term with an unidentified internationally known company.

Producers Council, Inc. names new officers

Elliott C. Spratt was re-elected president of the Producers Council, Inc., at the recent annual meeting of the organization of building materials manufacturers in Pittsburgh. Mr. Spratt is an officer of the Hillyard Chemical Co. of St. Joseph, Mo.

Other officers re-elected were William Gillett, Detroit Steel Products Co., Detroit, Mich. first vice-president; and F. J. Close, Aluminum Company of America, Pittsburgh, treasurer. Newly elected officers are Fred W. Hauserman, E. F. Hauserman Co., Cleveland, second vice-president; and William E. Zipp, Ceco Steel Products Corp., Chicago, secretary.

Admiral A. L. Parsons dies; was Navy Engineers head

Rear Admiral Archibald L. Parsons (Ret.), 78, who was chief of the Bureau of Yards and Docks from 1929 to 1933, died in New York Sept. 24. He had supervised many millions of dollars worth of Naval construction. On his retirement from the Navy in 1938 he joined the consulting engineering firm of Frederic R. Harris, Inc., of New York. He was an 1897 graduate of the Massachusetts Institute of Technology.

Wheels in motion

AFL starts work on plan to end jurisdictional strikes

The American Federation of Labor's action on jurisdictional disputes within its own ranks was not regarded as window dressing or just another resolution by veterans at the union's 72nd annual convention in St. Louis.

Last Friday, final day of the convention, the AFL voted that its executive council set up a special committee on jurisdictional disputes and submit a plan within six months to a conference of union leaders.

The executive council's plan would be subject to ratification at the 1954 convention. But if approved at the earlier conference, it may be put in effect at once—provided union heads in question are willing to agree.

After delegates had passed the resolution committee's report on a proposed plan of the AFL Building and Construction Trades Department to end inter-AFL raiding and quarrels over jurisdiction, AFL President George Meany said:

"I don't think we have ever discussed in this convention the problem of jurisdiction. In the past we spent many an hour discussing jurisdictional fights between various organizations. But I didn't think we have ever got into the basic problem itself—not into the problem where our thinking was not in any way influenced by a particular conflict at the moment. So I think this provided an opportunity for the council and its committee, the international unions, to examine the problem as a problem, not as a contest of the moment among several international unions."

Behind the scenes, it was said by persons who have been watching AFL conventions for a long time that this year's effort to get something done about jurisdictional disputes—an effort sparked by Richard J. Gray's Building and Construction Trades Department—ought to get somewhere for other very persuasive reasons.

In the past, these observers declared, the AFL has shown a tendency to avoid forceful or decisive action on the jurisdictional front for fear of losing powerful affiliates. Now the shoe is on the other foot: the AFL will lose members unless it does take effective action.

In support of this view, the following points were cited:

• With last week's elections, the new 15-member AFL executive council now includes Maurice Hutcheson of the carpenters union as 14th vice-president, and Al J. Hayes of the machinists as 15th vice president.

• The feuding carpenters and machinists, who have been engaged in running battle since 1914, appear to want—even insist on—jurisdictional peace. Hayes and Hutcheson announced in St. Louis on Sept. 22 that they had decided to settle their quarrel by direct negotiations.

• The carpenters walked out of the AFL in August because of inter-union raiding for membership and their return to the fold Sept. 1 was on the understanding that something substantial would be done about jurisdictional strikes. The machinists left the AFL in 1945 because of jurisdictional troubles, returning in 1951.

• With Hayes and Hutcheson both members of the policy-making council, and both wanting to work out a settlement, there should be a good chance for finding a practicable plan for settling difficulties.

Another reason for optimism was that the proposed non-raiding agreement with the CIO—which also was approved in its preliminary stages by the convention—would mean very little unless the AFL also could keep its own jurisdictional house in order.

• **Ready to bargain**—The AFL Building Trades Dept. wants three amendments to the Taft-Hartley Law—as a minimum—but won't consent to any unless the "right to work" laws in 14 states are nullified.

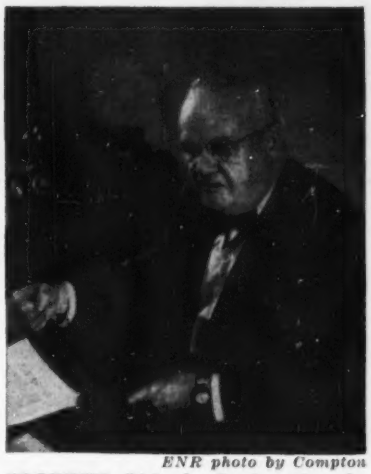
All three amendments were among the 19 in the tentative draft of a White House message to Congress which President Eisenhower did not approve, causing Secretary of Labor Martin P. Durkin to resign.

The building trades want:

• On closed shop, restoration of the closed shop or an effective union shop.

• On secondary boycott, reversal of the Supreme Court's decision in the Denver building trades case so as to permit union members on a union project to picket when non-union men are brought on the job by a subcontractor.

• On state laws, repeal of Taft-Hartley's Section 14(B) which gives precedence to the 14 state laws which go beyond Taft-Hartley in restricting compulsory union membership. Taft-Hartley permits an all-union shop, but the 14 states, mostly in the South, condone no form of compulsory unionism.



ENR photo by Compton

PRODDER—Richard Gray's cries for work-assignment harmony are heeded.

Painters ensnarled; untie selves in Texas court

Those who claim Texas as an unusual state could cite as an example the recent labor case that came up in the Galveston district court.

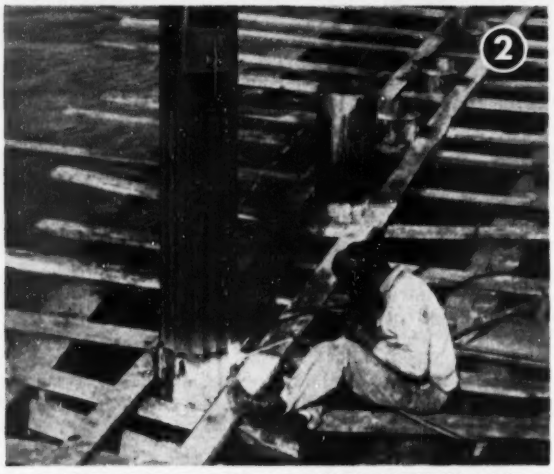
Roots of the case were unusual. The local branch of the Painting and Decorating Contractor's Assn. lodged a complaint against a painters union and 22 painting contractors of Galveston County. The charge: an attempt to eliminate members of the association as painting contractors.

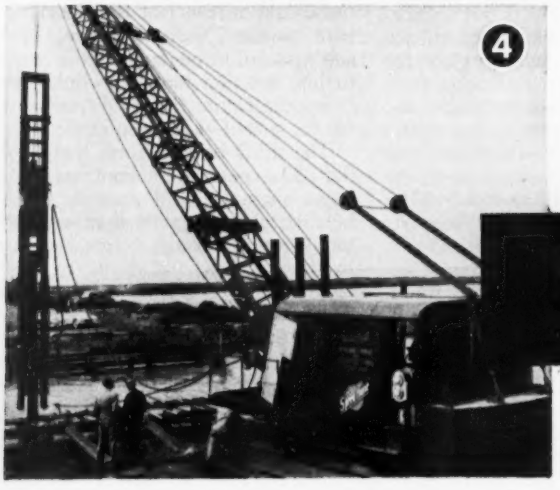
The first piece of testimony revealed that the union refused to recognize the association as a bargaining agent—not only for its own members but also for other contractors who had authorized the group to represent them.

The second major fact that emerged was that the union had voted not to supply any member of the association with painters. After January, 1954, any association contractor who wants to hire a union member would have to appear before the local's rank and file for a vote of approval.

The third disclosure was that 17 of the 22 contractor-defendants were union members—and as such, would be able to vote against their competitors when they came before the local to hire painters.

Since both sides were willing to sit down and negotiate, the judge suggested that they come to terms without judicial decision. As it now stands, the union recognizes the association as bargaining agent for its own members, and also for any other contractors who wish to be represented by it.





BIG SAVINGS ...4 WAYS with

MONOTUBE tapered steel piles

THE list of Monotube advantages is long. And you are welcome to *all* the facts . . . anytime. Meanwhile, think of the time and money you can save as a result of . . .

1. FIELD ASSEMBLY. Monotubes can be quickly, easily tailored to required length on the job, minimizing cut-off waste and saving time. Photo shows simplicity of nesting a Monotube extension with a "come-along" and two cable chokers.

2. SIMPLIFIED EXTENDIBILITY. When piles cannot be driven in one piece, Monotubes are readily welded and extended to *any* length as driving progresses. You eliminate complicated welding procedure by using a simple "girt" weld under normal driving conditions.

3. EASY CUT-OFF. With lightweight Monotubes, the cut-off operation is fast and easily accomplished. Careful use of cut-off sections as extensions minimizes waste.

4. DRIVING LONG PILES WITH SHORT LEADS. Because of Monotubes' cold-rolled strength, light weight and simple on-the-job extendibility, you can save the expense of special rigs, long leads or heavy driving equipment on tough jobs. Photo shows standard crane with short lead driving 150-ft. Monotube, in sections, 58 feet from shore.

For complete information, for more evidence that you'll be 'way ahead with Monotube piles, write to The Union Metal Manufacturing Co., Canton 5, Ohio.

UNION METAL

Monotube Foundation Piles

ENR staff photos

PAVEMENT DEFLECTION caused by dual wheel of a loaded truck or trailer moving at creep speed is measured by a lever arm deflection indicator known as the "Benkelman Beam."

Road deflection under load measured by portable device

An inexpensive portable device has been developed that measures deflection of highway pavements under moving load. Known as the Benkelman beam, it was worked out by A. C. Benkelman of the Bureau of Public Roads in connection with the Western Association of State Highway Officials' Test Road near Malad, Idaho. It measures deflection caused by one double wheel of a loaded truck or trailer as the vehicle moves forward at creep speed.

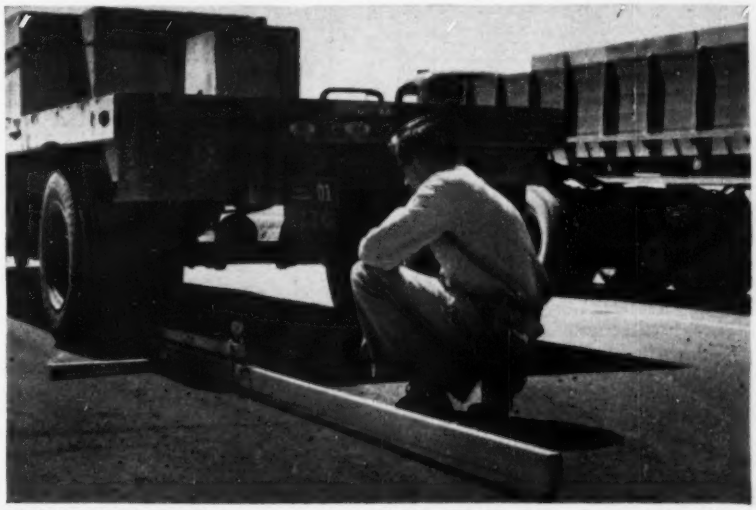
Engineers believe that the beam could be put to very effective use by state and local highway departments in evaluating existing pavements and in establishing seasonal load limitations. And by using two such devices, the deflections that are produced in both wheel paths can be measured simultaneously.

The device is also called a lever-arm deflection indicator. And that is a fairly good description of its principle of operation. It is simply a long lever arm with three point support of the pivoted fulcrum for an undisturbed zero reading. The lever arm or probe extends under the wheel and rests on the pavement surface far enough ahead so the static position of the truck produces no deflection. Then the truck is rolled slowly forward and the maximum deflection as the wheel passes the end of the probe arm noted on an Ames dial at the other end of the lever arm. The amount, of course, is reduced by the ratio of the lever arms.

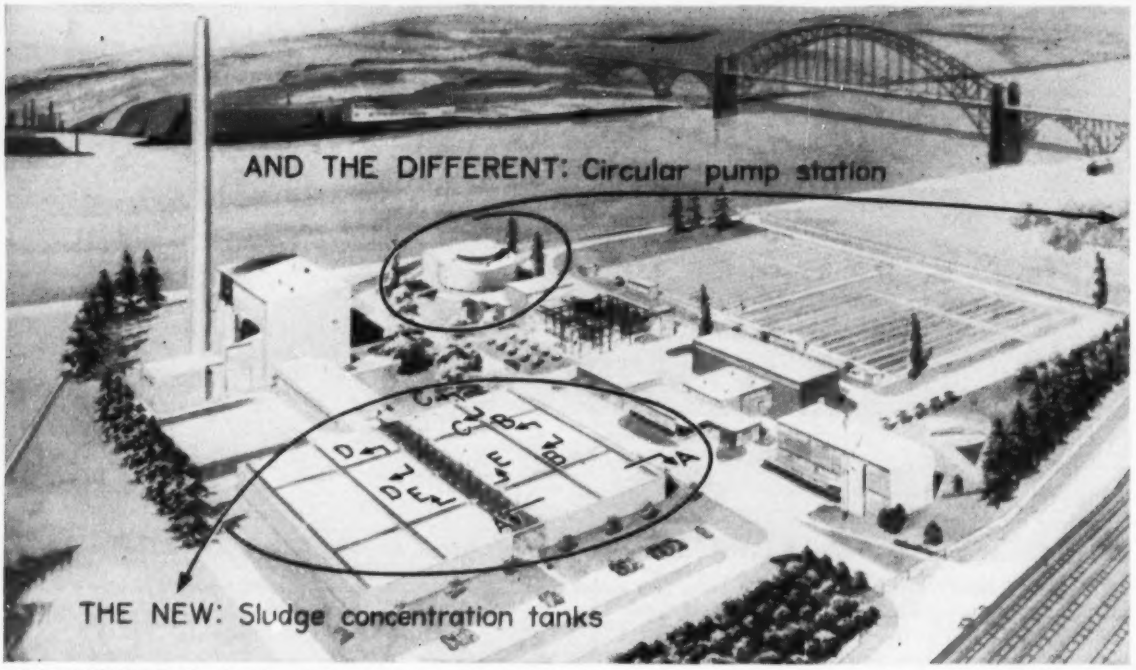
Engineers at the WASHO Test Road have used the "beam" for a quick analysis of the pavement condition. They point out that design of the device is flexible. Any suitable rigid material can be used for the arm and its base. And the length of the arm can be varied within limits set by the need to eliminate the possibility of a zero position deflection.

In applying the Benkelman beam to evaluating existing pavements it would first be necessary to establish critical load-deflection relationships for the type of road to be tested. This can be done by observations of existing pavement behavior or possibly by correlation with the much more involved plate bearing test. Once a chart of critical deflection versus wheel load is developed, it is a simple and inexpensive matter to evaluate existing roads.

Such evaluation could be very helpful in planning maintenance or reconstruction work. And it most certainly would be useful in establishing seasonal load limits.

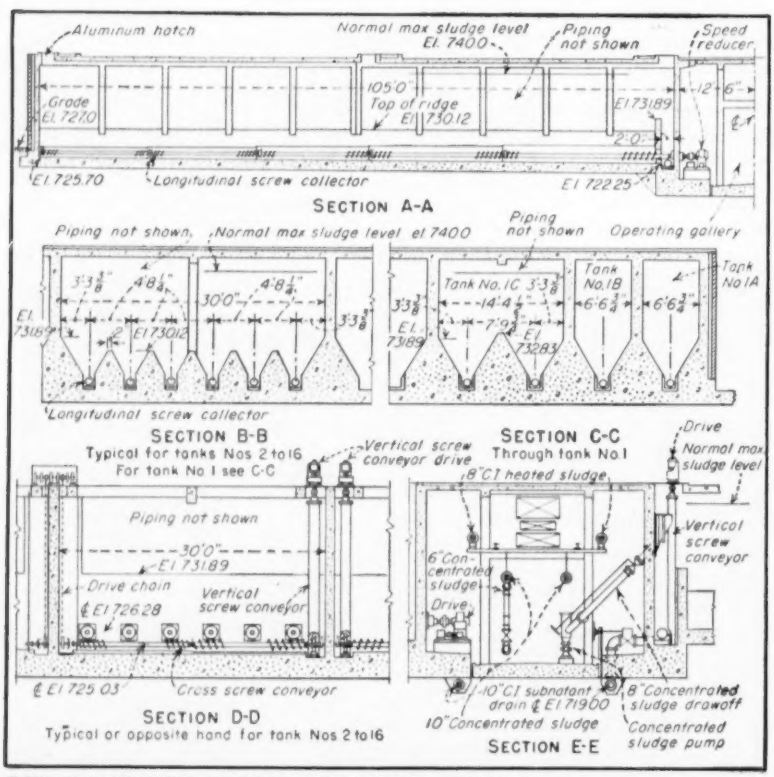


DEFLECTION IS READ from an Ames dial by W. N. Carey, Jr., project engineer for the Highway Research Board on the WASHO Test Road. The device was developed in connection with work on this test of flexible pavements.



LONG AWAITED—Pittsburgh and its environs have been a long time without a sewage treatment plant. Now the design for it is complete, and a remarkable design it is. Sections indicated in architect's rendering above appear below.

Novel sewage works comes off drawing boards

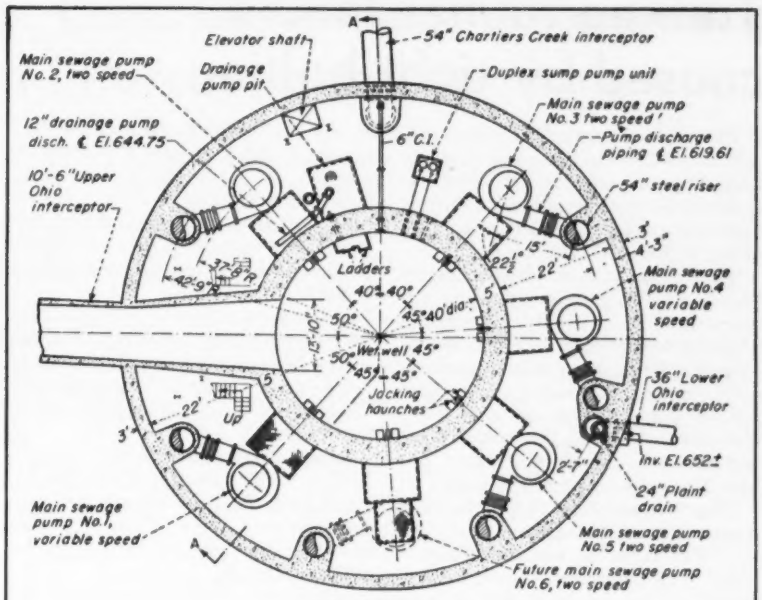


DETAILS OF SLUDGE CONCENTRATION TANKS—Sections taken as shown in picture at top of page indicate how designers propose to handle raw, concentrated sludge (20% solids). It will be burned, and its odors also, it is planned.

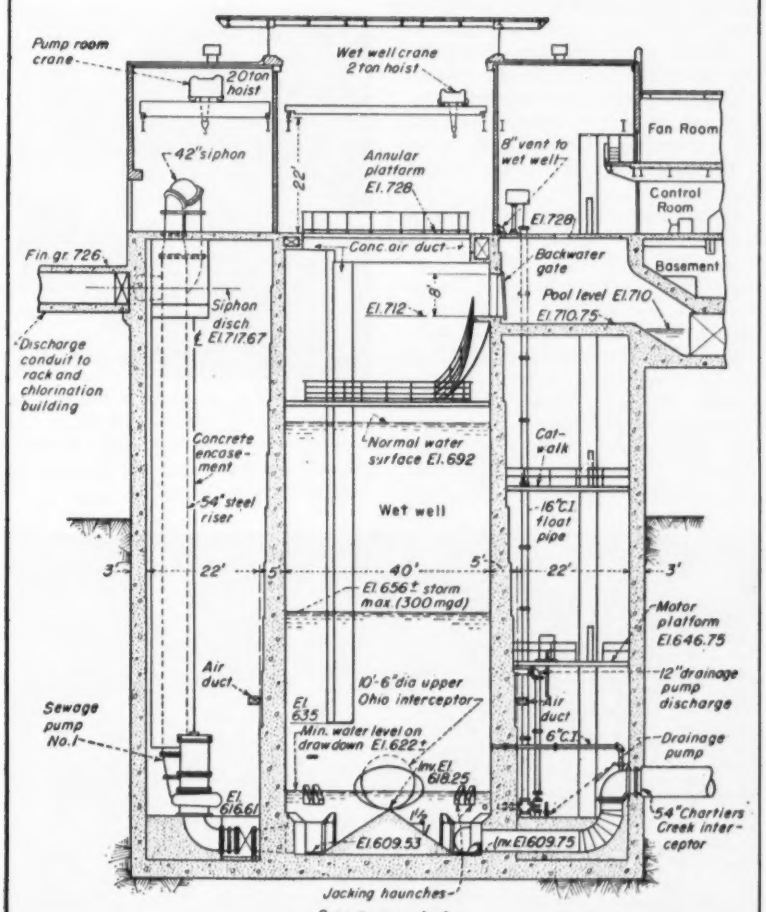
Something new in sewage works, a real departure from convention, has been drawn into plans now nearing completion for the Allegheny County Sanitary Authority (Pittsburgh and 63 neighboring Pennsylvania communities).

Consultants Metcalf & Eddy have designed the Laboon process—for concentrating undigested sludge—into a $17.6-million primary treatment plant planned for the north bank of the Ohio, about 3 miles below Pittsburgh's Golden Triangle. The process now designed worked well in small-scale pilot plant operation (ENR Oct. 11, 1951, pp. 21 and 30). John F. Laboon, chairman of ACSA, is confident his method will work as well on plant scale—a confidence obviously shared by Frank Flood, partner in Metcalf & Eddy, who has supervised all design.

Basically, the process takes advantage of the fact that sewage sludge put in a tank at 95 F will begin digesting; and practically all solids will float to the top for the first five days or more. Whether this flotation is due to formation of carbon dioxide, as John Laboon first thought, or expansion caused by temperature rise of air and other gases entrained in the heated sludge, as he now suspects, the solids do float. A relatively clear subnatant can be drawn off, and a sludge retained averaging


Elevator shaft
54" Chartiers Creek interceptor
Main sewage pump No. 2, two speed
Drainage pump pit
Duplex sump pump unit
Main sewage pump No. 3 two speed
12" drainage pump disch. ℄ El. 644.75
Pump discharge piping ℄ El. 619.61
10'-6" Upper Ohio interceptor
6" C.I.
54" steel riser
Ladders
Main sewage pump No. 4 variable speed
Wet well
Jacking haunches
36" Lower Ohio interceptor
Inv. El. 652±
24" Plaint drain
Main sewage pump No. 1, variable speed
Main sewage pump No. 5 two speed
Future main sewage pump No. 6, two speed

PUMP ROOM PLAN



SECTION A-A

SOMETHING DIFFERENT IN SEWAGE PUMPING—Circular in plan and cut deep into rock, the 300-mgd pumping plant has several special flow-control features—plus an interesting architectural design.

20% solids (the range of distribution being 16% to 24%).

• **The new**—Metcalf & Eddy's job was to design a closed system for handling the concentrated product—for getting it, and its odors, to an incinerator for burning. John Laboon's experiments had demonstrated that screw conveyors and a progressing cavity (Moyno) pump would work. The drawing to the left (sections through the sludge concentration tanks) indicates the system designed.

Settled sludge from the primary sedimentation tanks will be pumped, once each 8-hour shift, through the sludge heater building (pictured adjacent to concentration tanks), where 4-in. sludge pipes, will pass back and forth through steam chests to bring sludge temperature up to 95 F, and then to one or more of the 16 rectangular sludge concentration tanks (total capacity: 283,000 gal). Tank No. 1 is subdivided to provide fractional tank space, partly for raw sludge equalization storage (see Section C-C, p. 30); all the rest are 105x30 ft in plan and 14.67 to 15.67 ft deep.

Sloped bottoms of these tanks are sawtoothed in section, so that after subnatant has been drawn off and pumped back into the plant, the remaining solids will be drawn down onto the longitudinal screw conveyors. Transverse conveyors are to take the material from the longitudinal and feed it to vertical screws. These will lift the sludge to hoppers from which it will feed down inclined pipes into the helical-rotor (Moyno) pumps. One pump, driven by a 10-hp motor and rated at 150 gpm, will serve each pair of tanks. The concentrated sludge will be pumped after five days to an incinerator to be burned with either oil or gas, depending on availability. (Coal will not be used, as originally intended; its high handling costs make oil or gas more economical.)

A 20x60-in. air supply duct will ventilate the gallery of the concentration tank building; a 12x50-in. duct will bring air (heated to 95 F) into the tanks; a 32x60-in. exhaust duct will go directly to the incinerator carrying the odors (it's still raw sludge, remember) to be burned.

Concentration tanks will have 2-in. rigid insulation in their exterior walls and built-up roofing; radiant heating was considered, but determined to be unnecessary for the floors.

Under average conditions (150 mgd treatment) one day's sludge production will fill slightly more than one tank. Under maximum conditions (300 mgd), 12 to 13 tanks would be full, one-filling, one emptying and the remainder standing by at any given time. There is to be 2½-in. wrought iron

wash water spray piping in the tanks for clean-out as necessary.

The bulk of the subnatant is expected to be drawn off after one day; the remainder, just before withdrawal of the concentrated sludge. It will go back into process at the effluent end of the grit chamber.

• **And the different**—An aerated grit chamber of the type in Columbus, Ohio (ENR Apr. 28, 1949, p. 56) is proposed for the plant. In this structure, injected air gives flow a rolling, helical pattern, found to deposit more grit than straight flow-through. Aside from this feature the primary treatment is conventional—prechlorination, racks with grinders, preaeration for 44 minutes, additional chlorination before settling, and settling for 2 hours. The only really different feature of the plant—aside from its sludge disposal—is its circular sewage pumping station. This is out of the ordinary.

Three deep gravity sewers will tunnel into the cylindrical wet well of this pump station at points about 109 ft below grade. Their flow will be lifted by 5 (eventually 6) 60-mgd centrifugal sewage pumps deep in the annular space ringing the wet well. Operating normally under a 39-ft head (increased to 76 ft during storms), the pumps once weekly will draw down the wet well to step up sewer flow (1 fps to 4 fps) and thus flush out the tunnels, at which time the pumping head will be increased to 108 ft.

Pump controls will be automatic on low-speed operations, manual for the high-speed range. Manometer indicators in the control room will tell operators what flow conditions exist at 11 key points in the proposed 63-mile interceptor system. This advance information on inflows will permit coordination of pump operation for optimum efficiency.

Three of the 36-in. pumps will be driven by two-speed synchronous motors. The other two pumps will be driven by magnetic drives and synchronous motors at variable speed. Siphon breaks on their discharge sides will protect them against back flow. There will be a conduit with backwater gate for discharging overflow from the wet well to the river in emergency. The wet well extends above the main pump station roof as a circular shaft with overhanging roof and open steel louvres to vent off gases, as would a chimney.

Architecture of the circular pumphouse, as well as other plant buildings, will be somewhat of a departure from the usual, as indicated in the rendering. Extensive use of glass is perhaps the outstanding feature. Celli-Flynn, consulting architects of McKeesport, Pa., are to be credited.

Turbine runner failure caused by tight bolting

Failure of an impulse-turbine runner at the Pacific Gas and Electric Co.'s Bucks Creek plant has been attrubuted by company officials to overly tight bucket bolts that led to rupture of the forged-steel runner disk.

The Bucks Creek plant contains two double-hung units operating under a head of 2,561 ft and driving 25,000-kva generators. One wheel of Unit No. 1 flew apart at full operating speed last January causing severe damage to the unit and to the plant, necessitating taking the entire plant out of service. Both units were put back into service six months later.

Close examination of the wrecked runner showed the failure started in the disk between two bucket bolt holes. The bucket lugs prevented discovery of the cracks during routine monthly inspections. This was the first disk-caused failure in PG&E history.

Officials of the company concluded that the cause of the failure was excessive stress from over-tightening the bucket bolts and by excessively tightening the bolts that fasten the wheel to the shaft. The unit had been rebucketed last in 1931.

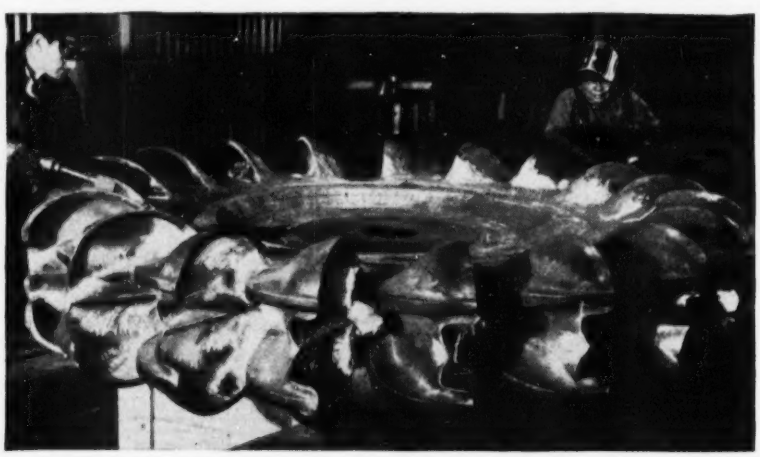
Examination of the runners of Unit No. 2 revealed similar fatigue cracks there. New buckets for that unit already had been delivered. Consequently it was rebuilt with detachable buckets. However, the design of the central disk was modified by cutting annular rings around the bolt holes as a stress-relieving measure. In future, tightening of the bolts is to be carefully controlled to avoid overstress.

Runners for Unit No. 1 were replaced with integrally cast steel wheels as the Pelton Water Wheel Co. had designs for such runners that could be adapted to Bucks Creek use with minor modifications and could deliver such a runner sooner and at less cost than for new built-up runners. Modification included means for attaching runners to the shaft.

Advantages claimed for these integrally cast runners are complete elimination of high stress concentrations at bolts, greater overall strength, freer discharge of water, and a 30% reduction in cost.

Disadvantages are that breakage of a bucket might mean discarding the entire wheel. And the complicated pattern makes a sound casting hard to achieve. New welding techniques for repairing breaks and expert foundry practice are said to overcome these objections.

FRACTURE of the turbine runner disk of Unit No. 1 occurred where it had been overstressed by 3¼-in. and 4-in. bolts. Smooth area between bolt holes indicates long undiscovered crack.



INTEGRALLY CAST RUNNERS were purchased to replace the built-up runners of Unit No. 1 as cast runners could be obtained quickly.

✓ Checklist of special features in interceptor sewer design

George O. Consoer
Consoer, Townsend & Associates
Chicago, Ill.

(A handy reference originally prepared for young designers in the author's consulting office—Editor.)

✓ **SIZE:** Design criteria for determining flow volumes in intercepting sewers are a combination of measurable factors, experience factors, and State Board of Health minimum requirements.

Usual practice in sizing intercepting sewers to be installed along a large stream is to compute sewage volumes by doubling the maximum measured dry weather flows of service sewers being intercepted, and to compute theoretical flows on a standard tributary acreage basis. The larger result will then usually be used for the design.

In cases where only a portion of a potentially tributary area is to be served at the time of installation of the interceptor it is necessary to use either the standard acreage estimate or to increase the gaged flow proportionally. If there are reasons for predicting a change in the character of a district, provision for increase of flows from such developments as industrial expansion should be made. When interceptors are to be installed along quiescent bodies of water or along streams with very low dry weather flows, the capacities of interceptors are usually increased to three to six times dry weather flows to avoid danger of overflow during times of light rains and high infiltration in the case of combined sewers, or to avoid overflows from separate sanitary sewers at times of high infiltration.

Illegal storm or drain connections are, in many cases, a large factor tending to increase maximum discharge from a supposedly purely sanitary system. In cities having both combined and separate sewer systems, the development of an appreciable amount of storm flow is usually quite probable, because plumbers tend to establish habits of making both storm and sanitary connections to a single sewer.

✓ **CONTROLS:** When interceptors are gathering dry weather flows from combined sewers, it is advisable to install some type of control device to limit the maximum interception at each outlet. These devices are needed for many purposes including:

(1) They will provide a fairly uniform percentage of interception during storm periods at all outlets, taking flows from the lower portions of sewers containing high percentages of solids.
(2) They will, if designed properly, eliminate excessive surcharge of, and consequent damage to, the intercepting sewer.
(3) A heavy storm in only one portion of the tributary area will not flood the interceptor and cause complete discharge of sanitary wastes from outlets in other parts of the area.
(4) Throttling devices will reduce maximum volume delivered.

Most cities use some type of gate for limiting maximum flows to the interceptor. These are usually shear gates actuated by a float to reduce the orifice size for large heads, or automatic gates designed to tip and thus vary the size of the orifice. Both will provide fairly uniform discharge for varying head conditions.

We have not found these gates to be as reliable for ordinary maintenance conditions as the more simple throttle pipe installations. In the latter, friction in a long small pipe is used to limit maximum discharge to about twice the free flow which occurs when the pipe is not under surcharge. Costs are not greatly different for the two types of installation. Usually, the throttle pipe must be from 200 to 400 ft long to accomplish its purpose of flow restriction. If room is not otherwise available, the throttle pipe can be laid alongside, over, or in some cases such as a tunnel, inside the main interceptor. The minimum practicable size of throttle pipe is usually 6 in.

One ordinary objection to the use of throttle pipe is non-adjustability for future flow increases. However, this can be provided by scheduling adjustable weir heights for the intercepting dam, by using two or more pipes with one or more closed until increase of flows necessitates greater interception. Use of pipes of two different sizes will permit scheduling three stages of interception capacity.

✓ **GRADE:** Ordinarily, but not always, the grade of the interceptor will be below existing combined sewers. If the throttling gates are used it is not usually possible to schedule the top of the interceptor above the invert of the contributing sewer. However, if throttle pipes are used, the intercepting sewer can run through the diversion chamber with its top forming the dam and several feet elevation can sometimes be gained in this way. Use of this method has enabled us to obtain free discharge for the interceptor at flood levels at treatment plants.

It is frequently possible to raise the interceptor grade by intercepting the flows of existing contributing sewers some distance upstream from their outlets. In such cases it may be necessary to construct new service sewers for area below the point of interception.

When an existing intercepting sewer requires relief, it has been found more economical in many cases to construct a higher level interceptor paralleling the original low level interceptor. This high sewer can be designed to carry sufficient excess flows to bring combined capacity up to requirements. Use of a high level interception will, in some cases, also eliminate the necessity of pumping the entire flow.

When flows from a large number of closely adjacent collecting sewers are to be intercepted it is usually advantageous to construct a sub-interceptor to collect these small flows to a single point for throttling of discharge to the interceptor. Throttling of flow at one chamber below a maximum of 200,000 gal per day is not usually practicable from a maintenance standpoint. Siphons are also not practicable for small flows.

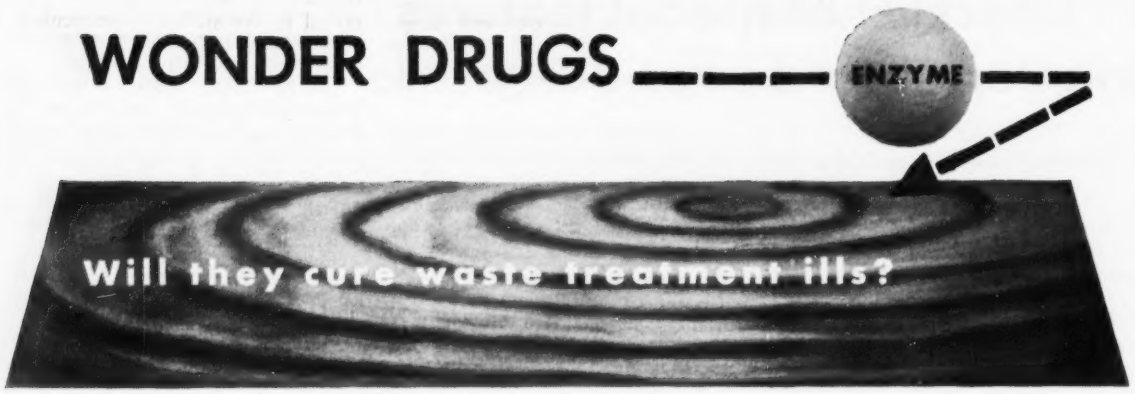
✓ **SIPHONS:** Proper design of siphons when required is a highly controversial subject. Certain design criteria such as minimum velocity of 3 fps for average flows have been established by governmental agencies.

We design each siphon to meet the particular conditions at the site and have usually provided for the convenient addition of protective coarse screens or sewage shredders.

For short siphons use of one size of pipe for each flow stage is universally standard and satisfactory in operation. For long siphons use of a smaller upflow than down-flow pipe has proved superior in operation. For spanning long ravines use of a clean-out and blow-off chamber at the low point is advisable. For wide river crossings the down-flow pipe can be planned to be long and the up-flow pipe short. A reducer should be placed on the down-flow pipe immediately ahead of the riser. Where possible, a clean-out chamber at the low point with removable pipe sections and draw-off valves should be included.

Design is especially difficult when the initial amount of flow is small compared with future flows. Use of three pipes is usually indicated to meet this type of situation. In a few cases of long ravine construction we have used a single down pipe and two differently sized up pipes, thus allowing for the future increase in two additional stages.

WONDER DRUGS



A critical look at the modern "panaceas" for sewage treatment

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New products sporting high-sounding names have appeared in the last two years in the waste disposal field. Startling claims have been made for them—and they are all aimed at solving any problem encountered in the disposal of sewage or industrial wastes. To the sewage and industrial waste plant operator, claims for these modern remedies seem almost too good to be true, and considerable question has arisen as to their validity.

Most such operators are well aware that the majority of treatment plants operate day in and day out without the need for emergency injections or additions. They know, too, that within their plants are hosts of biological organisms of various types which produce the various biocatalysts (enzymes) needed for active and rapid stabilization of organic matter—provided they maintain a favorable environment within the plant for the organisms to reproduce and multiply in a normal manner. Thus, a well designed and operated plant consistently produces all the biocatalysts that its organisms require.

• **Fundamental facts**—It is well recognized that the major end products of aerobic sewage treatment are carbon dioxide, water and new organisms (sludge). The major end products of anaerobic digestion are carbon dioxide, methane and residual sludge containing the myriad of organisms responsible for the changes produced.

All aerobic or anaerobic stabilization of organic matter depends on the presence of hydrolytic enzymes, which split fat, carbohydrates and proteins into simpler compounds. Further stabilization is dependent upon oxidative enzymes, which accomplish the actual conversion to carbon dioxide and water—releasing energy for cell growth, reproduction and manufacture of more enzymes.

One important difference exists between the catalysts of inorganic nature and biocatalysts: the former, by definition, have a long life and need rejuvenation or replacement only at infrequent intervals; biocatalysts, on the other hand, have a relatively short life owing to denaturation which occurs during use. In addition, many of the enzymes released by bacteria are active in the water outside the cell wall and are constantly being lost in the effluent from the plant. Those enzymes within the cell wall are also lost as sludge is wasted. It is this constant loss of biocatalyst which makes it imperative that the regenerative capacity of the organisms be kept at a satisfactory level. (It is for this reason, also, that the emergency addition of biocatalysts has to be on a continuous or frequent basis to obtain results and, therefore, can easily become an expensive measure.)

• **Commercially available**—The products available are claimed to have been designed to supplement certain biological factors which have been found to be responsible for many operational problems. Though they are marketed under various trade names in different parts of the country, the commercial biocatalysts are basically either concentrated cultures of bacteria or concentrated enzymes.

One concentrated bacteria product is claimed to be "composed of select groups of preserved micro-organisms active in each phase of treatment, but also contains unique biological factors to supplement and accelerate all treatment phases through synergism and biocatalytic action." This product is available in different types for specific treatment units. For digesters, it "consists of preserved living cultures of select anaerobic organisms, activating factors from mold sources, potent aerobic digesting organisms, together with enzyme systems and other undefined biocatalysts." Similar cultures are available for trickling filters, Imhoff plants, activated sludge plants and septic tanks. There are also custom tailored cultures.

One of the concentrated enzyme products "is an enzyme active biological compound especially formulated to increase the rate of digestion of sewage." It contains more than 70 enzymes including various esterases, sulfatases, carbohydrases, amylases, amidases and proteolytic enzymes, all of the hydrolytic type.

• **Claims**—In general, the claims of the manufacturers of the various commercial biocatalysts deal in sweeping generalities which tend to lead the prospective buyer to the conclusion that they will solve all of his problems. This is illustrated in the bulletin of a concentrated bacteria product which stated: "Biological activity of sewage and industrial waste treatment plants can be improved, and the capacity of the plants as they are, can be increased through the use . . ." The literature for an enzyme product says: "It is capable of digesting sterile sewage, and does so in less time than can be accomplished in properly designed sewage digestion plants."

But for the operator with a specific problem, there is little specific information. In starting a new plant, the operator is told, "You won't experience 'starting trouble' because the 'seeding' of your plant will take place with the most efficient organisms for each process." Furthermore, add another product in the digester and "sludge digestion will be improved

and accelerated. Odor, suspended solids and BOD of the supernatant will be reduced." Another manufacturer claims his product "brings about a much more rapid rate of digestion, increases gas production and reduces the volume of digested sludge." Trickling filter problems are solved as "all biological factors are combined to increase settling rate, to reduce BOD and suspended solids in the effluent, and accelerate digestion." When a particular commercial biocatalyst is used in the primary clarifier, "enzymatic reaction liquifies a large portion of the colloidal solids and the carrier used . . . serves as a floculating agent, giving greater clarification and producing a better effluent."

• **Actual experience**—Value of the new commercial biocatalysts lies not in what has been claimed but rather in what they have done. Very little information is available as to what the various products have done—mostly because of the time and data required for a complete study. Most of the information published to date has come from the manufacturers or from the manufacturers and the operators jointly. But little by little information is becoming available directly from operators and from independent research studies.

• **Pro**—Successful use of concentrated enzymes was reported from the Oakland, Calif., sewage plant. Overgrowth on the high rate trickling filter was causing ponding until concentrated enzymes were added. The enzymes destroyed the overgrowth and aided in the return of normal growth. Enzymes were also used to clean out the primary sludge line and to help in cleaning out the sludge digester which had to be shut down for repairs. After treatment, sludge digestion appeared to benefit. The digested sludge drawn onto the drying beds required only two weeks to dry; previously 30 days were required. Unfortunately, it was not possible to ascertain if the increased speed of drying came as a result of the added enzymes or as a result of cleaning the digester.

Results from Houston, Tex., using concentrated bacteria to relieve an overloaded digester, showed an improvement, using digester supernatant quality as an index. The sludge volume drawn to the drying beds was reduced 50% from that previously drawn; but the sludge was still green, indicating poor digestion. As in the case at Oakland, there was no control against which to check the results brought about by the commercial bacteria.

Reports from Kenosha, Wis., on a 20-week controlled sludge digestion experiment with concentrated enzymes, indicated a 5% improvement in gas production and total solids reduction. There was also a 50% reduction in suspended solids in the supernatant. One of the unusual properties of the digesting sludge at Kenosha was that it contained 3,700 ppm copper. Copper is toxic to bacteria and may have been responsible for the slight benefit afforded by the enzymes which are not affected by copper.

Enzymes have also been reported effective in improving digester activity at the McDonnell Aircraft Corporation sewage plant at St. Louis, Mo. A test by the N. O. Nelson Co. on the addition of enzymes to model septic tanks gave 15% higher BOD removals and 25% higher suspended solids removal in the enzyme treated units over the untreated units.

Using the "super activated sludge" process recently developed at Southwest Research Institute, San Antonio, Tex., tests carried on at Southwest Foundation for Research and Education on the stabilization of citrus waste, using both types of commercial biocatalysts, showed that the growth which developed normally from sewage and from commercial enzymes consisted primarily of filamentous organisms and was not satisfactory in stabilizing this waste. But the addition of large quantities of commercial bacteria daily prevented the predomination of the filamentous forms and gave satisfactory treatment.

• **Con**—All the available information on the commercial biocatalysts is not in favor of their use. At San Antonio, Tex., enzymes were used in an effort to liquefy the thick scum layer that existed on top of the open digesters. No liquefaction took place and the project was abandoned. An experiment at MIT on the ability of enzymes to aid in the starting of a sludge digester yielded no difference between the control unit and the enzyme treated unit as far as time required for gasification to start. Similar studies conducted on Imhoff tank sludge failed to show any benefit even with 10 times the recommended dosage.

At Southwest Research Institute both enzymes and bacteria were used in research on the treatment of a strong industrial waste by the "super activated sludge" process. The units fed commercial enzymes or bacteria did not have any beneficial results over those of the control. Modifying the system to reduce the amount of recirculated effluent resulted in a slight increase in efficiency when enzymes were used. No increase in efficiency resulted in the units fed additional bacteria. Thus, with this particular waste certain hydrolytic enzymes were furnished by the bacteria and maintained in the system by recirculating 90% of the effluent. Reducing the amount of effluent recirculated created a deficiency of hydrolytic enzymes which were then furnished by the commercial enzyme product.

In the experiments conducted at the Southwest Foundation for Research and Education at San Antonio on the effects of commercial enzymes and bacteria in normal activated sludge systems, a completely soluble synthetic sewage, raw sewage and an industrial waste from citrus canneries were used as substrates. Neither the commercial enzymes nor the commercial bacteria had any additional effect over the bacteria normally present in sewage even when dosed 100 times the manufacturer's recommended dosage.

• **Cost**—The price of commercial biocatalysts varies from $3.15 to $4.95 per pound, depending on the type being purchased and the amount. But in the words of one manufacturer "Actually the use . . . does not entail any cost at all since it invariably saves its purchase price by eliminating many expensive conditions that arise through improper digestion in a disposal unit." The same manufacturer claims that through use of his product: "Hundreds of cities, widely distributed in the states west of the Mississippi are experiencing savings up to ninety percent of normal operating and maintenance costs . . . increased plant loads that would have required plant investments from $35,000 to $100,000, exclusive of engineering fees and bond costs, have been cared for . . . at a pro-rated daily charge varying from $3.00 to $10.00 per day."

Unfortunately, results do not correspond with claims. Where the products have been used with limited success there is some question as to the economics of use. At Houston, "the expected results from, and costs of, biological additives are still not well established . . ." The commercial biocatalysts were abandoned at Kenosha, Wis., because "the value of the 5% increase in gas production did not warrant the cost of this material for use on a plant scale." Upon inquiry the "hundreds of cities" claimed to be using biocatalysts routinely melts rapidly into an insignificant number.

• **Value**—At present, there is considerable doubt as to the value of these commercial products.

Results have shown that these commercial biocatalysts can bring about improvement in certain operating problems, but that for the most part, it is not dramatic nor do they appear to afford an economical solution.

The addition of commercial bac-

teria just to equal the number of bacteria normally present in domestic sewage would cost the operator from $9.00 to $27.00 per million gallons. The mere equaling of the incoming bacterial population is not sufficient to cause a complete change in the bacterial predomination. To shift the biological equilibrium in an established system, the numbers of commercial bacteria must exceed many times the number already present in the system.

In the case of an activated sludge system containing 2,000 ppm suspended solids, there are 17,000 pounds of active biological solids in every million gallons of mixed liquor in the aeration tank. Changing the biological predomination in such a system would require disposal of all of the sludge already in the system and its replacement with sufficient commercial bacteria to permit rapid re-establishment of the proper organisms. Such an operation would cost in excess of $1,000 per million gallons aeration tank capacity.

The major cause of anaerobic digestion problems is the production of excess acids resulting from the rapid hydrolysis of the organic solids and action thereon by the acid-forming bacteria. The addition of commercial hydrolyzing enzymes may speed up the furnishing of food to the acid-producing bacteria, and thus, instead of alleviating the problem, the addition of such materials may aggravate it.

One of the shortcomings with the commercial biocatalysts is the absence of oxidative enzymes. Since these enzymes exist only within bodies of bacteria, there is no way of adding them except in the form of living bacteria. This lack of oxidative enzymes definitely limits the value of the commercial enzymes. An equal handicap to the commercial bacterial preparations is the lack of protozoa and higher forms of life so necessary for optimum efficiency of biological purification systems.

While it is true that the use of commercial biocatalysts may assist the operator in solving some of the bothersome problems such as clogged sludge lines, clogged sewer lines and in cleaning out various units which have to be repaired, the indiscriminate use of these products by the operator and the engineer for treatment problems can cause the commercial biocatalysts to become an expensive excuse to cover poor design and poor operation. An investment in knowledge of how to keep the organisms in the various parts of a treatment plant happy and healthy will pay greater and more lasting dividends.

9-STORY OFFICE BUILDING, of reinforced concrete waffle-slab construction, in Queens, New York, will be air conditioned with ten package units.

Packaged air conditioning frees office building space

New York's first "packaged" air conditioned office building is now under construction at Queens Plaza in Long Island City. With ten factory-assembled, self-contained air conditioning units, the new nine-story-and-penthouse building will have a total cooling capacity of 285 tons of refrigeration.

An independently operating 30-ton "package" unit will be located on each of the nine floors, while a 15-ton unit will serve the penthouse and a section of the ninth floor. Each unit occupies an enclosed equipment room in the building's central service core. All the elements of a central air conditioning plant are contained in each "package" including the blower section, compressor section and evaporative condenser.

The use of this air conditioning system eliminates need for a cooling tower on the roof, and frees the penthouse area for renting space. Runs of condenser water piping and refrigerant piping are considerably cut down with the system.

Full building floors will be leased to tenants and metering of the air conditioning equipment will be possible, since each floor's unit operates independently. Each tenant will have control over his equipment, which will be regulated by wall thermostats.

Fresh air supply and exhaust will be handled through two shafts running the entire height of the building.

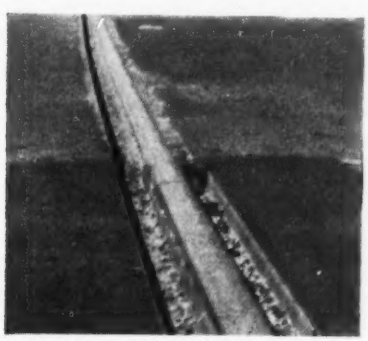
Winter heating will be supplemented by warm air circulated through the units.

The building is being built by the Depot Construction Corp. for Queens Plaza-Crescent, Inc., owner, both of New York. Wechsler & Schimenti, New York are the architects, and J. W. Hubert Corp., New York, is air conditioning and heating contractor. The package units used are United States Air Conditioning Corp.'s dual-circuit "Refrigerated Kooler-Aire" units.

RAIL IS SET in a partially asphalted street. The street is opened to the depth of the ties, and the guard rails set on shop-fashioned steel supports (made from old rails) against the running rails. New asphalt is retained by the flange of the 60-lb guard rail.

City and railway collaborate: invent new pavement guard

Constant repair of asphalt streets at grade crossings has been virtually eliminated in Spokane by the city and the Great Northern Railway. The solution to the problem of chipped pavement at grade crossings is an improved rail guard fashioned from cast-off railroad rails.



GOOD JOB—This is Howard Street in Spokane, after the new guard rails had been installed halfway across the street. (It was done half at a time to avoid closing the street altogether.) Contrast the neat, smooth crossing in the foreground with chipped asphalt near the unguarded rails in background.

Before the improvement, Spokane Public Works Superintendent Lawrence Espey says the city "kept a crew busy all the time patching streets at crossings. Sometimes in winter, we'd cold patch—and the patch would pop out before nightfall."

Today the city has a crossing that has not been patched in three years, and shows little sign of wear. A second crossing has held up without deterioration for two years. Great Northern crews under foreman Mike Loiso are installing the new guards at the railway's nine major grade crossings inside the city.

• **This is how it works**—Cast-off 60-lb rails are used as guards, with the head of the 60-lb rail set tightly against the web of the 112-lb running rail. The flange of the 60-lb rail makes a firm wall for the asphalt, and the web of the guard rail creates a 2-in. gap between the asphalt and running rail.

The narrow gap between the pavement and rail makes a smooth crossing for automobiles. Result—fewer irate phone calls to city hall about rough rides over the tracks. The gaps are wide enough for easy cleaning by railway crews, but best of all, the asphalt holds up without chipping off under the vibration of passing trains or the constant pounding from auto tires. Ice chips out of the rail guards quickly without danger to the pavement.

Two winters of experience with the improved guards indicate that water seeping beneath the pavement and forming ice virtually can be eliminated. This writes off thousands of dollars of expense annually in the city budget for repairing buckled pavement after each winter.

The 60-lb. rail installed as guard is held in place by metal blocks fashioned from cast-off rail in the Spokane Great Northern shops, and spiked into every third tie. Once the rail is positioned on these blocks, the head of the guard rail nests securely against the web of the running rail.

An ordinary crew can open the street, lay guard rails for two pairs of tracks, and repair the street in the usual working day.

Los Angeles slum program to be heard at conference

Building officials will be paying close attention to at least one of the reports presented at the Oct. 6 meeting in Pasadena of the Pacific Coast Building Officials' Conference.

The "Morris Plan" of substandard home reclamation that was launched in Los Angeles will be presented by Gilbert E. Morris, superintendent of building of Los Angeles.

The plan, claimed to have shown remarkable results so far, was conceived as a logical cure for city blight. It has as its premise Morris' conviction that if it is demonstrated to a property owner that, at reasonable cost, his property can be transformed from a personal liability into a presentable habitation with increased value and higher potential earning power, little in the way of persuasion is necessary, for this will accomplish what attempts at rigid law enforcement have failed to do.

His inspectors have found that when one "face-lifting" in a particular section shows the results possible through use of paint, 2 x 4s and wrecking bars, the most common reaction is an eagerness to get started.

One measure of the progress of the program is presented in the claim that out of 500 surveys made (involving 1,140 buildings), only two owners have been cited under the punitive provisions of the local ordinance.

ENR photos by Compton

"Selling is the greatest profession in the world." That's the belief of . . .

Bill Orchard: poet, peddler, sanitary engineer

Arthur J. Fox, Jr.
Associate Editor

It didn't matter quite so much this week whether each preceding day's business was posted by 10 am on the big blackboards in the office of the general manager of Wallace & Tiernan Co., Inc., Belleville, N. J., Bill Orchard was out of town.

In Poland Spring, Me., at the New England Water Works Association meeting, he was out of town—yet very much at home. Close to his native Boston, near his alma mater MIT, Bill Orchard was at home with the waterworks designers, managers, operators, and manufacturers among whom he has assumed an unparalleled, almost legendary position of leadership over the years.

After Maine comes Florida, for the 26th annual meeting of the Federation of Sewage & Industrial Wastes Associations—the 26th he has attended since serving on the "committee of 100" which founded the organization. In this congregation, too—as well as in the larger and older American Water Works Assn. which has run out of honors to heap upon him—Bill Orchard will be equally at home.

For if AWWA's Secretary Harry Jordan is this country's Mr. Waterworks, and Charles A. Emerson (ENR Oct. 16, 1952, p 23) is Mr. Sewage Works, then William John Orchard is Mr. Water & Sewage Works.

Perhaps no other man alive as forcefully as Bill Orchard personifies and speaks for the sizable and significant segment of engineering and construction that may be grouped as water supply and sanitation.

It will give pause to the thousands in sanitary engineering who know him to consider that the always energetic Orchard, the perennial toastmaster and great showman, will be 65 this Nov. 15. He plans to take a bit less active role in W & T business activity (some announcement as to a successor is coming, and not too far off). And if he decelerates his professional and his community activities along with his business, sanitary engineering and suburban Essex County, N. J., will feel his gradual retirement just as surely as will the force of 150 sales engineers W & T has in the field.

Bill Orchard has put a lot into life and gained the respect of all those he's reached—in business, in his profession and in his community.

• **In business**—Orchard lacks two years of being a 40-year man with W & T. He got in practically on the ground floor, when Wallace (the inventor) and Tiernan (the promoter) had a staff of only 10 persons. Now they have about 27 different lines of activity, from navigation aids, through flour bleach and athlete's foot remedy, to the chemical feed and chlorinator field. And Bill Orchard is a director or officer of a dozen W & T subsidiary organizations, as well as being general manager of the parent firm.

He stresses that the still active

Charles Wallace and Martin F. (Mike) Tiernan were a winning combination from the time they sold their first chlorinator to Jersey City in 1913 (for $150, before they had even built it). But there is no denying that the dynamic Bill Orchard has been a very vital third ingredient. Hired by Tiernan as an engineer, after jobs in the N. J. State Department of Health and the Metropolitan Water Board of Boston, Orchard, almost from the start, handled sales.

"Selling is the greatest profession in the world," he says. He's a salesman's salesman. His creed: "You've got to see them, to show them, to sell them."

And to "show them" you have to know your business; that's why "we try to remember we are engineers," says Orchard. "The fundamentals of engineering can be carried into business." They have to be at W&T, he points out, since it is an organization based on research by engineers and chemists; and its sales depend on a sizable staff of service engineers.

Another Orchard maxim: The only way to lead is to lead. And lead W&T has over the years. Its dealings with some 5,000 municipal waterworks, plus the difficulties of some competitors, have attracted the attention of the Justice Department on the question of antitrust law violations in the past. A 1941 indictment has been dismissed, and W&T does have competitors in the sanitary end of its business, and knows it.

Fluoridation is a new part of W&T business, but not as big a part as it might be. "It grabbed fast," says Orchard, "but then the doubting Thomases slowed it down." He believes the practice is basically sound and thinks it's but a matter of time before every U. S. city fluoridates its water supply to prevent decay in children's teeth. He thinks it is just as well that fluoridation did slow down somewhat, since nobody was ready for it businesswise at the rate it was growing.

Newest W&T gimmick is far from the sanitary engineering end of the business. Early activity in flour bleaching has kept the firm close to the milling and baking field. Now W&T has come up with a continuous bread making process that makes a white bread of angel-cake texture out of standard ingredients. By pre-fermenting a broth and adding it to dry ingredients, the process mixes and extrudes dough in 2 to 3 minutes and eliminates most of the usual steps that now occupy bakers for hours. So the Baker Do-Maker (invented by W&T's John C. Baker) has been a prime interest of Bill Orchard's over the last year or so.

• **In his profession**—"Every professional man has a responsibility to his profession," Bill Orchard believes. And, to him, this means active participation in the affairs of that profession's organizations.

He has been in the AWWA since 1917 and was the first New Jersey director on the association's board. As AWWA's perennial finance committee chairman, Orchard still has a voice on that board. "It's a device for giving him the privilege of the floor," admits AWWA Secretary Jordan, whose respect for Orchard has grown through years of seeing him assume responsibility and get jobs done. "All hot potatoes go to Bill," says Jordan.

One of the hot potatoes was putting some kind of order into the rough and tumble convention activities of manufacturers who helped "liven" up water and sewage works association conventions back in prohibition days. Orchard was a big influence in the development of the Water & Sewage Works Manufacturers Association.

The W&SWMA effectively brought order out of disorder, Bill Orchard riding roughshod. With passing of time, the group grew and increased in strength. Its membership now totals 189 top manufacturers (and publications) in the field. It became much less a one-man show as executives from other member firms took an active interest, but Bill Orchard is still chairman of the organization's motivating committee—a power steering device for guiding policy.

As a fellow in the American Public Health Assn., Orchard the entertainer who spouts his own verse, the complete extrovert, has for years "emced" its annual engineers' dinner. At last year's, an appreciative audience presented him with a volume of tributes that is one of his treasures.

• **In his community**—On a par with the APHA tribute, Orchard treasures a recently struck bronze plaque. It's in William J. Orchard Playground in his beloved Maplewood, N. J., where friends and neighbors of long standing think highly of the man.

In the town where he has raised three sons and two daughters, Orchard is trustee of a hospital, chairman of the citizens committee, past president of the civic association and of the chamber of commerce.

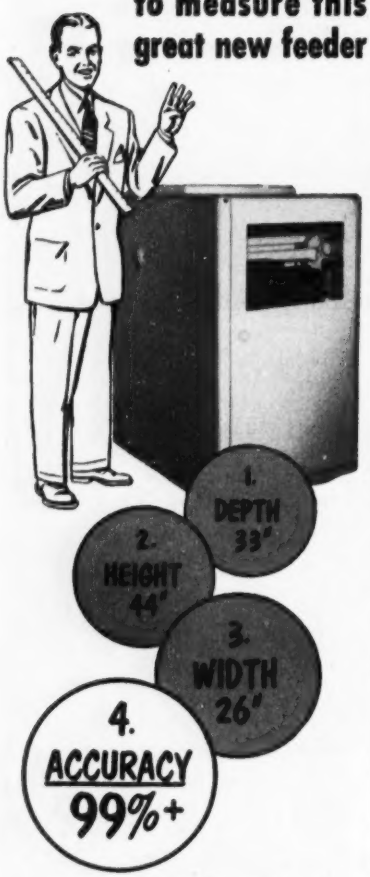
He acts the same way about community functions as about professional activities: they're a duty; and a lot of fun. An indefatigable worker for Essex County, he served in World War II as chairman of the manpower mobilization program in North Jersey. He since was a delegate to the state's constitutional convention.

Never a candidate for political office, Bill Orchard took a big part in nominating the present Republican candidate for governor in his state (Paul Troast, chairman of the New Jersey Turnpike Authority).

Some years ago, at Trenton, there was sentiment abroad that might have made Orchard a candidate for governor of his state. Says his old friend Harry Jordan: "Bill is not mean enough to clean up New Jersey."

HURRY-UP doughmaker and navigation flashers are two of W&T's 27 lines. The loaf that Orchard is carrying through plant is fresh from the testing lab.

4 ways to measure this great new feeder



Now, at a REDUCED PRICE, the accuracy of the loss-in-weight feeding system is available for feeding very small quantities of dry material. Omega's NEW Size "O" Loss-In-Weight Gravimetric Feeder is only about as big as an apartment-sized kitchen range, yet it's capable of feeding up to 100 pounds per hour with an accuracy of 99% or better. Feed rate is adjustable over a 100-to-1 range.

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OMEGA

(DIVISION OF B-I-F INDUSTRIES)

OBITUARIES

Eric H. Lichtenberg, 68, of Milwaukee, Wis., a pioneer in the development of modern concrete mixing and paving equipment and methods, died Aug. 28 at Milwaukee. He was patent research engineer for the Koehring Co. for the last 13 years and previously was the firm's chief engineer. He had been an employee for 42 years. He was holder of several hundred patents on concrete mixing, paving and other construction equipment which he developed and which is being used generally on road and dam construction. He was appointed chairman of the standards committee of the Power Crane and Shovel Association.

Harris F. MacNeish, 73, professor of engineering mathematics at the University of Miami and a former Chicagoan, died Sept. 4 in Miami, Fla. He had lived there for six years, since leaving Brooklyn College, New York, where he was chairman of the department of mathematics.

Harold J. Seymour, 62, since 1950 city engineer of Elizabeth, N. J., and for 35 years before that assistant city engineer, died Sept. 15. He aided in the expansion of Newark Airport, and in recent months he had been engaged in the construction of the $5-million intercepting sewer to end pollution of the Arthur Mill.

John S. Kennedy Sr., 57, for 17 years consulting engineer for the Portland Cement Association, died Sept. 12 in Novelty, Ohio. He received his C.E. degree from the University of Akron in 1918. He served 11 years as deputy Summit County engineer. In 1942 he was president of the Ohio Society of Professional Engineers and for many years was on the board of the national society.

Abel Harrington Simpson, 75 civil engineer, formerly with the Board of Transportation, N. Y. City, died Sept. 8 at Hempstead, N. Y. He was captain of the 32nd Division of Engineers in World War I. A graduate of Clarkson Institute of Technology, he retired in 1946.

Frederick N. Fowler, 74, a civil engineering consultant at Hudson and Springfield, Mass., died at Clinton, Mass., Sept. 19. He was active in hydroelectric development and right-of-way work for many years. He was a graduate of the Massachusetts Institute of Technology.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
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J. H. WEBBER, M R. ROESSLER, E R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dept. P. Wks., 100 Nashua St., Boston,

The Henley-Lundgren Co., 193 Hartford Pike, Shrewsbury, Mass. CA **$1,334,162**, est. $1,350,200. Contr. 1, hy. and bridge constr., Rte. 5, Agawam. CD 9/8, under LB.

▲† **Lane Constr. Corp.**, 965 E. Main St., Meriden, Conn. LB **$8,837,652.** runways, taxiways, aircraft fueling sys., Westover Air Force Base, ENG.-19-016-54-22, CHICOPEE FALLS, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Sept. 18. CD 9/14.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Neri Constr. Co.**, 131 Main St., Millbury, Mass. LB **$1,274,000.** Tantasqua Regional Dist. SCHOOL, Brimfield Rd., STURBRIDGE, MASS. Towns of Sturbridge, Brookfield, Brimfield, Wales and Holland, Tantasqua Regional School Dist., School Bldg. Comn., Sturbridge, Mass. Bids Sept. 17. CD 8/28.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Walsh Constr. Co. and C. J. Langenfelder & Son, Inc., 1 East 43 St., New York, 17, N. Y., CA, **$14,816,126;** New York State Thwy.—Catskill sect.—sub. 6. (Harriman-Newburgh) etc., Orange Co.

Potter De Witt Corp., Pavilion, N. Y., CA, **$590,536** Alpine Cayuta Pt. 2 and Cayuta-Swarthwood Pts. 1 and 2, S 8242 Cayuta-Swarthwood, Pt. 2, SH 1915, 8.37 mi. FARC 53-95 Chemung and Schuyler Counties;

L. G. DeFelice & Son, Inc., Nettleton Ave., North Haven, Conn., CA, **$6,720,579,** New York State Thwy., Hudson Sect. Sub. 8 (Suffern-Nyack); Spring Valley-Suffern SH 9000; Spring Valley-Knapps Cors. SH 689; 9 mi. cross roads and Erie R.R. relocation; 3.17 mi. Acc. 4.84 mi. Thwy. RT 53-8 ST 53-29, RC 53-109, Rockland Co. Grand total $22,127,241. Bids Aug. 20. CD 8/24, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Mt. Vernon Constr. Corp., S. A. Healy Co., M. A. Gammino Constr. Co., 439 N. Terrace Ave., Mt. Vernon, N. Y., LB, **$10,044,782,** est. $10,046,000, c. conc. 4.64 mi. unrein.-conc. 2.56 mi. b. conc. 0.23 mi. misc. work, 0.08 mi. 4 hy. spes. comp. I-beams 161.1 ft., 58 ft., 218.8 ft. and 125 ft. hy. sep. I-beam, 246.8 ft. bridge built-up beam 462.5 ft. railroad and hy. separation div. comp. I-beam 788 ft. Ped. br. comp. I-beam 149.5 ft. New York State Thruway-Catskill Sect. Sub. 7 (Suffern-Harriman Pt. 2), Rte. 17 Interchange 4 misc. sec. roads, New Jersey State Line-Ramapo S.H. 1844 CT 53-12, RC 53-107, ST 53-31, Rockland Co. Bids Sept. 17. CD 8/26.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

L. G. De Felice & Son, Inc., Nettleton Ave., North Haven, Conn., CA, **$3,444,142,** New York State Thruway Hudson Sect. Subd. 8 (Suffern-Nyack Pt. 1), Oaklane-Hemion Rd., Airmont Rd.; Suffern Mt. Ivey, S.H. 1448, 2.86 mi. Thwy., 0.58 mi. Acc. H.T. 53-4, S.T. 53-22, R.C. 53-46, Rockland Co.; CA, **$9,678,349** New York State Thruway-Mohawk Sec.-Sub. 108 (East Schuyler-Fort Herkimer); Herkimer Interchange; 6 Secondary Cross Roads; Mohawk Jacksonburg-Little Falls, S.H. 8401; Herkimer Village, East Albany, St. S.H. 5060, 6.98 mi. Thy. 3.85 mi. Acc. M.T. 53-10, S.T. 53-23, R.C. 53/47, Herkimer Co. Bids June 12. CD 6/15, under LB.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Peckham Road Corp., 50 Harlem Ave., White Plains, N. Y. CA **$710,062,** est. $886,000, 5.3 mi. West Taghkanic-Ancram, SH 9058, West Taghkanic-Bell Pond-Claverack, SH 1919; Livingston-Hudson, Pt. 2A, FARC 53-75, FASSH 53-10, Columbia Co.;

Tomlinson Constr. Co. Ltd., Weedsport, N. Y., CA **$2,351,326,** est. $2,585,000, 2.88 mi. Acc., 1.7 mi. Thy., New York State Thruway-Mohawk Sect. Sub. 1, (Gregg Rd.-Gordon Rd.); Interchange with S.H. 641; Schenectady-Rotterdam Jct. S.H. 641, MT. 53-12, RC 53-83, Schenectady Co.;

Potter-DeWitt Corp., Pavilion, N. Y., CA **$994,692,** est. $1,185,000, 4.85 mi. Bath-Hammondsport, Pts. 1 and 2, SH 5517-5495, FARC. 53-66, Steuben Co.;

I. & O. A. Slutzky, Hunter, N. Y., CA **$1,126,384,** est. $1,128,000, 5.46 mi. Hunter-Jewett Center, S.H. 997, Hunter-Tannersville, S.H. 1242, Tannersville-Haines Falls, S.H. 1630, FARC. 53-72, RC. 53-73, Greene Co. Grand total $5,182,464. Bids July 9. CD 7/15, under LB.

Otis Eelavtor Co., 1012 20th St. N.W., Wash., D. C., LB **$69,983.** elevators, Bldgs. 6, 7 and 18, Veterans Admin. Hospital, MONTROSE, N. Y. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Sept. 15. CD 8/3.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, Zone 1,

Warren Bros. Roads Co., 309 Basin St., Syracuse, N. Y., LB, **$226,026,** est. $246,000. 0.98 mi. De Witt-Cicero (Thompson Road) Co. Rd. 13, FASS 53-14, Onondaga Co.;

A. E. Ottaviano Inc., 80 Brook St., Croton-on-Hudson, N. Y., LB, **$2,169,252,** est. $2,527.000 0.51 mi. Acc. 2.68 Rd. Miles Sawmill River Parkway (Mt. Kisco-Katonah Pt. 2) Harris Road Interchange; Railroad Ave., Access Road, Mt. Kisco-Katonah SH 1533, SMRP 53-2, R.C. 53-119 Westchester Co.; received no bids Sept. 17, 0.35 mi. Syracuse City; Adams St., FAX 53-18, Onondaga Co., **$202,000;** cancelled bids to have been opened Sept. 17, 4.82 mi. Acc. 4.52 Thy. miles New York State Thruway-Hudson Sect—Sub. 8 (Suffern-Nyack Pt. 3), Palisades Interstate Parkway Interchange; 8 misc. sec. roads; Coyles Corners-Short Clove, SH 9005, HT 53-9, RC. 53-118, ST-53-32, Rockland Co., **$7,449,000,** Will re-advertise. Bids Sept. 17. CD 8/26.

▲ **NEW YORK**—Bureau Contract & Accounts. The Governor Alfred E. Smith State Office Bldg., Albany, Zone 1,

Cancelled bids to have been opened Sept. 17, 460 Acc. 1.57 Thy miles, New York State Thruway-Hudson Sect. Sub. 9A, (Nyack Approach to Tappan Zee Bridge); Nyack Interchange; access ramps, New Jersey State Line-Nyack Pt. 3 and Pt. 4, SH 8136-5682 Nyack Village; Main St., SH 8459, Knapp Cors., Nyack, SH 5178 & Nine Misc. Secondary Cross Roads incl. relocation of railroad tracks, HT 53-10 RC5-3121, ST 53-33, Rockland Co. **$7,765,000.** Will re-advertise. CD 8/26.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, Zone 1,

P. T. Cox Constr. Co., Inc., 271 Church St., New York, N. Y., CA, **$1,012,859,** bridges, walls and grading for 0.32 mi. Route 21 from Herbert Place to Riverside Ave., Newark, Essex Co. Bids Sept. 8, awarded Sept. 14. CD 9/10, under LB.

NEW JERSEY—State Hy. Dpt. Office Bldg., 1035 Parkway Ave., Trenton, Zone 1,

Francis A. Canuso & Sons, 173 W. Roosevelt Blvd., Phila., Pa., CA, **$935,014,** paving 2.502 mi. U.S. Rte. 130 from Repaupo Road to Raccoon Creek, Logan Twp., Gloucester Co. Bids Sept, 1, awarded Sept. 14. CD 9/10, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **C. C. Davis Constr. Co.**, Rear 220 Bridge St., New Cumberland, Pa., LB **$1,482,830,** general constr., **Herre Brothers**, 6th and Montrose Sts., Harrisburg, Pa., LB **$112,500,** heating; LB **$142.059,** plumbing; **Kenneth W. Rowlands**, 15 Turner St., Plymouth, Pa., LB **$97,907.** electrical work for 1 story, 250x480 ft. GARAGE and WAREHOUSE BLDG. for State storage and automotive service, at 22nd and State Sts., HARRISBURG, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids Sept. 16. CD 9/4.

▲ **Joseph Nebel, Inc.**, 2140 P St. N.W., Wash., D. C., LB **$3,131,000,** alt. add. **$2,000** industrial SCHOOL, LAUREL, MD. D. C. Govt., Dir. Constr., 499 Pennsylvania Ave. N.W., Wash., D. C. Bids Sept, 17. CD 8/27.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	**Latin America**
Sewers, Waste Disposal	**Public Buildings**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects inviolved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	**Federal Government**
▲	**Project of $1,000,000 or over.**
B.A.	**Bids Asked**
ENR	**Engineering News-Record**
CD	**Engineering News-Record Construction Daily**

SOUTH

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ † **McLean Contg. Co.**, 1301 Fidelity Bldg., Baltimore 1, Md., LB **$2,883,000.** Little Creek Cove Piers, Ramps and Quays, Naval Amphibious Base, NOY 78212, LITTLE CREEK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Knappen-Tippetts-Abbett-McCarthy, 62 W. 47 St., New York, N. Y., engrs. Bids Sept. 15. CD 9/3.

▲ **WEST VIRGINIA**—West Virginia Turnpike Comn., 1340 Wilson St., Charleston, Zone 5,

Allegheny Asphalt & Paving Co., Bingham and 8 Sts., Pittsburgh, Pa., LB **$1,452,206,** Contract 30 A, Alternate 2, flex. asph. paving, drainage, incl. curbs, gutters, Mile 20 to 28, Raleigh Co.;

Nello L. Teer Co., P. O. Box 1131, Durham, N. C., LB **$1,611,693,** Alternate 1, rigid c. conc.; **$1,328,117** Alternate 2, flex. asph., Contract No. 30B, paving, drainage, incl. gutters, curbs, toll plaza Mile 28 to 35, Raleigh Co.; LB **$2,255,248,** Alternate 1, rigid c. conc.; **$1,859,510,** Alternate 2, flex. asph. Contract 30C, paving, drainage, incl. curbs, gutters, Mile 30 to 43, Raleigh Co.;

Latrobe Road Constr. Co., Latrobe, Pa., LB, **$1,290,916** Alternate 2, flex. asph., Contract 30D, paving, drainage incl. curbs, gutters, Mile 43 to 50, Fayette Co. Bids Sept. 15. CD 8/18.

▲ **Panama-Williams Co.**, Melrose Bldg., Houston, Tex. CA Est. **$2,000,000.** 65.6 mi. gas line from Golden Meadow to Houma, LOUISIANA. Texas Pipe Line Co., Texas Bldg., Houston, Tex.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Jacob H. Brody**, 7464 Millbrook Rd., Norfolk, Va. Owner Builds. **$1,000,000.** 60 brick veneer RESIDENCES, NORFOLK, VA.

▲ **E. I. duPont de Nemours & Co.**, duPont Bldg., Wilmington, Del., Own Forces, **$3,000,000,** PLANT and MINE to produce ilemite from which titanium and pigments are made, LAWTEY, FLA.

▲ **Tidewater Constr. Co.**, 538 Front St., Norfolk, Va., CA, **$4,500,000,** bleaching PLANT, water supply, screening plant to produce kraft paper, PENSACOLA, FLA. St. Regis Paper Co., Cantonment, Pensacola, Fla. CD 4/3/52.

▲ **Standard Constr. Co.**, 15 E. 11 St., Columbus, Ga., CA. Est. **$2,000,000,** substructure for steam electric PLANT, GORGAS, ALA. Alabama Power Co., 600 N. 18 St., Birmingham, Ala. Bids Sept. 1. CD 8/28.

▲ **B. Ludwig Constr. Co.**, 1350 Jefferson Hy., New Orleans, La. CA **$1,058,000.** bag mfg. MILL, NEW ORLEANS, LA. Fulton Bag & Cotton Mills, 1100 S. Peters St., New Orleans, La. CD 11/19.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ill., Decatur**—B.A. 11/2—Sanitary District of Decatur, Citizens Bldg., East Side Intercepting Sewer System Divs. A, B, C, and D, Proj. Ill. 11-P-1011, approx. $1,000,000; Stevens Creek Intercepting Sewer System, Divs. E, F, G, and H, Proj. Ill. 11-P-1012, $2,000,000. Plans deposit $50 each. Warren & Van Praag, Inc., 253 S. Park St., Decatur, Ill., consult. engr., adv. 9/24. CD 6/3.

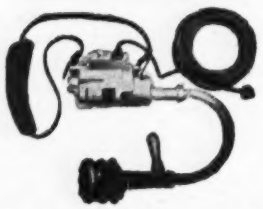
HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—Ohio Turnpike Comn., 139 E. Gay St., Columbus, Zone 15,

Peter Kiewit Sons Co., 1024 Omaha Natl. Bank Bldg., and **Condon-Cunningham Co.**, 4229 Lafayette St., Omaha, Neb. CA **$5,041,098,** 6.6 mi. Sections 20 and 21, Cayahoga Co., and CA **$5,108,958,** 8.1 mi. Sections 34 and 35, Erie and Sandusky Counties. Bids Sept. 18, awarded Sept. 22. CD 8/20.

"BERG"
CONCRETE SURFACER MODEL A



"Berg" equipment is used extensively for surfacing and finishing applications on concrete construction.

The many "BERG" Models available, permit exact selection for your particular application.

The distinctive "BERG" features give you the kind of results that are realized in better quality work, combined with lower costs.

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4667 SPRING GROVE AVE.
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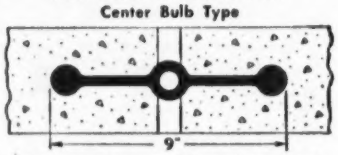
Servicised
Molded Rubber WATERSTOP

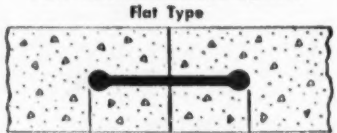
FOR EXPANSION JOINTS
Center Bulb Type



Servicised Rubber Waterstops meet all standard engineering specifications. Made of durable, elastic, cured rubber compound.

Both types available in 6", 9" and 12" widths in any required length.

FOR CONSTRUCTION JOINTS
Flat Type



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▲ **Day & Zimmerman, Inc.,** 1700 Sansom St., Phila., Pa. CA, steel towers;
A. Bentley & Sons Co., 201 Belmont St., Toledo, O., CA foundations for tower, for 138,000 volt transmission line skirting northern edge of city from E. Toledo sub-station, including span of line 2,279 ft. long between two 265 ft. towers over Maumee River, OHIO. Toledo Edison Co., Edison Bldg., Toledo, O. Total est. $1,300,000. CD 6/20/50.

▲ **Schirmer-Peterson Co.,** 6830 Beaver Ave., Cleveland, O., CA $1,908,000, est. $2,200,000. maintenance bldg., passenger station and bus roadways, Windermere Terminal of Cleveland Rapid Transit System, East Cleveland, CLEVELAND, O. Cleveland Transit System, 1404 E. 9th St., Cleveland 14, O. Bids Aug. 14. CD 8/20, under LB.

▲ **Thompson Constr. Co.,** 3840 Prospect St., Indianapolis, Ind., and **Stone City Constr. Co.,** Bedford, Ind., CA, $1,286,664 sewers, BEDFORD, IND. Bd. P. Wks., City Hall, Bedford, Ind. Bids Sept. 1, awarded Sept. 16. CD 9/9, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Central Excavating Co.,** 3205 Croton Ave., Cleveland, O. CA Est. $5,000,000. site clearance for FACTORY to make Ford V-8 automobile engines on 142 acre tract adjacent to present engine and foundry plant, Brook Park, CLEVELAND, O. **Ford Motor Co.,** 3000 Schaefer St., Dearborn, Mich. CD 4/28.

▲† **Allis-Chalmers Mfg. Co.,** 1126 S. 70 St., Milwaukee, Wis. CA $4,337,527, equipment;
General Electric Corp., Portsmouth, O. CA $3,433,996, equipment;
Westinghouse Electric Corp., 207 W. 3 St., Cincinnati, O. CA $975,200, equipment;
Federal Electric Products Co., Crescent St., Long Island City, N. Y. CA $122,350, equipment;
Lake Shore Electric Mfg. Corp., 2400 Woodland St., Bedford, O. CA $535,000, auxiliary power panels;
Eichleay Corp., 33 S. 19 St., Pittsburgh, Pa. CA $1,810,202, foundations and appurtenant work on process bldg.;
Altman-Coady Co., 1251 Fairwood Ave., Columbus, O. CA $123,362. constr. 3 storage bldgs. for gaseous diffusion PLANT (Subcontractor under Peter Kiewit Sons' Co., P.O. Box 268, Portsmouth, O.) for Atomic Energy Comn., 1901 Constitution Ave., N.W., Wash., D. C. PIKETON AND WAKEFIELD, O. Grand total $11,337,637. CD 8/13/52, under CA.

▲ **Chipley Realty Co.,** 8 E. Long St., Columbus, O. Owner Builds. $1,500,000. 6 story HOTEL and SHOPPING CENTER in Waverly Heights Addn., WAVERLY, O. Howard T. Fisher & Associates, Inc., 322 W. Washington St., Chicago, Ill., and Seward H. Mott, 2151 "K" St. N.W., Wash., D. C., engrs.

▲† **Fort Wayne Structural Steel Co.,** 4920 N. Clinton St., Fort Wayne, Ind., CA Total est. $2,500,000, structural steel for FACTORY with BOILER HOUSE, for Bendix Aviation Corp., MISHAWAKA, IND. Ninth Naval Dist., Great Lakes Naval Training Station, Great Lakes, Ill. Awarded Sept. 11. CD 2/3.

▲ **Bee Cee Builders,** 3818 Greenleaf St., Skokie, Ill. Owner Builds. $9,000,000, 600 HOMES, ADDISON, ILL.

▲ **Hallmark Homes,** 3548 Nora Ave., Chicago, Ill. Owner Builds. $1,750,000, 150 HOMES, northwest of CHICAGO, ILL. Raymond Peterson, 4014 Dempster St., Skokie, Ill., archt.

▲ **S. N. Nielsen,** 3059 Augusta Blvd., Chicago, Ill., LB, $1,579,000, YOUTH DETENTION DORMITORY and MENS DETENTION DORMITORY, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Sept. 11. CD 8/19.

▲ **Enger Bros.,** 4910 St. Paul Ave., Chicago, Ill., CA, $2,004,705, HIGH SCHOOL addn., FRANKLIN PARK, ILL. Leyden Twp. High School District 220, 3400 Rose St., Franklin Park, Ill. Bids Aug. 21, awarded Sept. 18. CD 8/28, under LB.

▲ **Wm. Pearson,** 717 E. Cass St., Joliet, Ill. Owner Builds. $1,000,000, 80 HOUSES, JOLIET, ILL. Awarded Sept. 8.

WEST OF MISSISSIPPI

BIDS ASKED—BUILDINGS

▲ **Minn., Blue Earth**—SCHOOL—B.A. 10/20—Bd. Educ., M. Yvonne Russ, clk., high school. Haarstick, Lundgren & Assoc., W. 1391 First National Bank Bldg., St. Paul, archts. Bids 9/2 rejected, LB $1,418,000. CD 9/16, under LB.

▲ **Tex., Dallas**—OFFICE—Bids Asked—ICT Group Home Office Building, c/o Ben Jack Cage, Mercantile Commerce Bldg., 4 story, bsmnt. office. $1,500,000. CD 6/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Omaha Incinerator Corp.,** 540 Omaha Natl. Bank Bldg., Omaha, Neb., LB $1,041,120, incinerator, OMAHA, NEB. City, City Hall, 18 and Farnam Sts., Omaha, Neb. Bids Sept. 15. CD 8/12.

▲ **OKLAHOMA**—State Hy. Dpt., Capitol, Oklahoma City, R. R. Tway, Inc., 720 N.E. 19 St., Oklahoma City, 5, Okla., CA, $1,071,902, est. $1,082,435, concrete bridge over S. Canadian River U. S. 183, Camerge, Dewey Co. Bids Sept. 9, awarded Sept. 10. CD 8/27.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Phoenix Development Co.,** 4628 Dodge St., Omaha, Neb., CA $1,255,000. HOUSING in Underwood Dist. west of Omaha FHA proj. OMAHA, NEB. Underwood Properties, Inc., 4628 Dodge St., Omaha, Neb.

▲ **Manhattan Constr. Co.,** Manhattan Bldg., Muskogee, Okla. CA $3,066,100, est. $3,500,000. Tulsa County COURT HOUSE, TULSA, OKLA. Tulsa Co., Court House, Tulsa, Okla. Bids Sept. 19, awarded Sept. 17. CD 9/16, under LB.

▲ **Pontiac Refining Corp. & Gulf Oil Corp.,** 3400 Lawrence Dr., Corpus Christi, Tex. Owner Builds. $1,214,000. PETROLEUM REFINERY UNIT; $90,000, PRODUCTS STORAGE UNIT, CORPUS CHRISTI, TEX. CD 1/15/52.

FAR WEST

BIDS ASKED—BUILDINGS

▲ **Calif., San Francisco**—OFFICE—B.A. 10/9—Equitable Life Assurance Society of U. S., 315 Montgomery St., 25 story office, $12,500,000. W. D. Peugh, 333 Montgomery St., archt. CD 11/6.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **CALIFORNIA**—Division of San Francisco Toll Crossings, 2054 University Ave., Berkeley,
Cancelled bids to have been opened Sept. 15, electrical and mechanical work for approaches, toll plaza, etc. Richmond-San Rafael Bridge across San Francisco Bay, Marin and Contra Costa Counties. CD 8/5.

▲ **R. A. Wattson Co.,** 12550 Saticoy St., North Hollywood, Calif., LB $1,252,000, Proj. 146 Central Ave., Glendale Ave. and portion of Proj. 60 Topico storm drains, Glendale, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Sept. 18. CD 8/18.

▲ **Fred J. Early Jr. Co., Inc.,** 22124 S. Vermont Ave., Los Angeles, Calif., LB $2,860,814, sewer trunk lines and disposal system and sewage treatment plant at Air Force Plant No. 2, PALMDALE, CALIF. Lockheed Aircraft Corp., Burbank, Calif. Bids Sept 15. CD 9/15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Henry George & Sons,** Hutton Bldg., Spokane, Wash., LB, $1,079,813, general contract civic AUDITORIUM, SPOKANE, WASH. City, City Hall, Spokane, Wash. Bids Sept. 17. CD 8/18.

CANADA

SOON LETS CONTRACT—BUILDINGS

▲ **Ont., Sarnia**—PLANT—Holmes Foundry Co. Ltd., 200 Exmouth St., soon lets contract, plant expansion, $1,000,000. Giffels & Vallet of Canada Ltd., Canada Trust Bldg., Windsor, engrs. CD 9/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Burns & Dutton Concrete & Construction Co. Ltd.,** 137 Ave. and 104 St., Edmonton, Alta., CA, $2,500,000 housing development, incl. 354 units, Air Force Base, COLD LAKE, ALTA. Central Mortgage & Housing Corp., Kensington Bldg., Winnipeg, Man. Bids Aug. 12, awarded Sept. 15. CD 7/30.

▲ **ONTARIO**—Ontario Dept. Highways, Parliament Bldgs., Toronto,
C. A. Pitts General Contractor Ltd., 30 Commercial Rd., Leaside, Toronto, Ont., CA, $1,000,010 grading and culverts 10 mi. in Blind River area from Montreal River to Agawa, Highway 17. Awarded Sept. 15. CD 4/27/44.

AMERICANS ABROAD

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **P. Kretzer & Son, Inc.,** 32-15 Lawrence St., Flushing, N. Y., U.S.A., CA Est. $11,000,000, three airports at Konya, Diyarbakir and Eskisehir, TURKEY. Ministry of Public Works, Bureau of Airports, Ankara, Turkey.

Proposed Projects

SEWERS, WASTE DISPOSAL

▲ **Mo., St. Louis County**—St. Louis County, c/o Luman F. Matthews, superv., 7902 Forsyth Blvd., Clayton, Zone 24, sanitary sewerage sys. for Cold Water Creek area of county from St. Charles Rock Rd. (US No. 40) north to Missouri River. $2,234,000. Fulton Engineering Co., 3289 Brown Rd., Overland, Zone 14, consult. engrs. CD 10/16/51.

▲ **O., Youngstown**—City, City Hall, Boardman and Phelps Sts., sewage treatment plant and disposal sys. $8,000,000-$10,000,000. Havens & Emerson, Leader Bldg., Cleveland, consult. engrs. CD 5/8/52.

STREETS AND ROADS

▲ **Mo., St. Louis County**—St. Louis County, c/o Luman P. Matthews, co. superv., Court House, Clayton, Zone 5, bond election Feb. 9, hys. and expressway, $32,124,000. New date. CD 6/10.

EARTHWORK, WATERWAYS

▲† **Alaska**—U. S. Eng., Anchorage, 2 rock breakwaters, 700 and 1,550 ft. long and dredging for small boat basin at Bar Point, Ketchikan, $2,947,900; 900 ft. breakwater and dredging for small boat basin at Pelican, $270,000; remove rock hazards at Rocky Pass in Keku Strait, $214,000; dredging small boat basin at Petersburg, $40,000.

AIRPORTS

▲ **Ga., Atlanta**—AIRPORT IMPRVS.—City, City Hall, loading apron, $1,500,000; passenger terminal, $1,500,000; loading facilities, $750,000, at municipal airport. CD 6/28/45.

▲† **Kan., Topeka**—RUNWAY—U. S. Eng., 601 Davidson Bldg., Kansas City 6, Mo., 12,000 ft. runway at Forbes Air Force Base. $3,000,000. CD 5/19/52.

PUBLIC BUILDINGS

▲ **Mass., Boston**—HOSPITAL—City, Institutions Dpt., City Hall, plans by John M. Gray Co., 175 High St., hospital for chronically ill, Long Island Boston Harbor, $5,340,000. CD 12/6/51.

▲ **Mo., St. Louis County**—HEALTH and WELFARE STRUCTURES—St. Louis County, c/o Luman F. Matthews, co. superv., Court House, Clayton, Zone 5, bond election Feb. 9 health and welfare structures, etc., $3,458,500; public bldgs., $3,000,000. New date. CD 6/10.

▲ **Tex., Tyler**—HOSPITAL—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Walter C. Moore, c/o owner, tuberculosis hospital. $3,250,000. CD 9/23/52.

▲ **Utah, Salt Lake City**—UNION—State Building Fund Bd. Capitol Bldg., plans by Fred L. Markham, 45 N. University St., Provo, union bldg. for University of Utah. $2,500,000.

COMMERCIAL BUILDINGS

▲ **Mich., Livonia**—HOSPITAL—St. Mary's Hospital, Felician Sisters, Livonia, brick, steel, concrete general hospital Five Mile Rd. and Levan St. $2,000,000.

▲ **N. Y., New York**—OFFICE—711 Third Ave., Inc., 342 Madison Ave., Zone 17, plans by William Lescaze, 211 E. 48 St., Zone 17, 19 story office, Third Ave. between 44 and 45 Sts. $6,325,000.

▲ **Ont., Port Franks**—SUMMER RESORT TOWN—Sarnia Modern Built Homes, Howard Emery, mgr., Front St., Sarnia, summer resort town with theatre, motel, stores, restaurant and 500 homes, $3,000,000.

▲ **Que., Magog**—HOSPITAL—Hospital de la Providence, Soeurs Charite Sacre-Coeur, 540x800 ft. hospital, Belieowe and Merry Sts. $3,000,000. CD 5/8/52.

UNCLASSIFIED

▲ **Mo., St. Louis County**—PARKS—St. Louis County, c/o Luman P. Matthews, co. superv., Court House, Clayton, Zone 5, bond election Feb. 9, county parks, $4,500,000. New date. CD 6/10.

▲ **O., Cleveland**—SUBWAY—Cuyahoga Co., Court House, bond election Nov. 3, constr. downtown (Cleveland) subway. $35,000,000. Albert S. Porter, Standard Bldg., engr. CD 9/11/52.

▲ **Tex., Houston**—DOCK IMPRVS.—Port Comm., Wharf No. 13, defeated bonds Sept. 12, Long Beach Dock imprvs. $500,000; Warehouse No. 1, $1,500,000; Warehouse No. 2, $1,250,000; No. 1 wharf, $2,275,000; No. 2 wharf, $1,975,000; grain wharf, $950,000; constr. grain unloading proj., $450,000. CD 8/13.

▲ **B. C., Vancouver**—ARENA—Coleman Hall, 790 Howe St., plans by Wm K. Noppe, 1186 Nicola St., arena, $2,500,000.

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We have galvanized thousands of tons of: gratings, beams, bars, perforated screens, sections, forms, tanks, fittings, rails, fastenings, etc. *Excellent facilities for pickling and oiling.*

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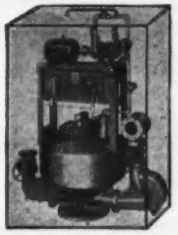


Cousins:- Perpetual Motion and the PKG. SHONE EJECTOR

You've heard this one, surely: Stranger, addressing town's old-timer — "You've lived here all your life?" Old Timer, shifting tobacco, "Not yit!"

That's the way it is with the veteran Shone—there's no indication of its life span because none of 'em have worn out! Practically perpetual motion.

- Take, for example, the problem of handling solids-bearing liquids, where floor space is limited and there's no plant air supply.

  Answer—very simple: the Shone Pneumatic Ejector, package type; complete, factory assembled, self-contained, electrically controlled, with built-in automatic control. No separate concrete floor for motor. Air compressor mounted integrally. It won't clog, has nothing to get out of order—will still be faithfully tending to its job long after you've retired.

Why not ask the Yeomans representative about this long-distance champion?

Or send for

☐ Manual 4000CI

MOTOPUMP features ACCESS TO IMPELLER

without disturbing discharge piping

Like all Yeomans Pumps the Motopump—close-coupled heavy-duty centrifugal—is designed to need as little service as possible, and to make that "little" as easy as possible.

- To get at the impeller, you simply remove a suction cover; an important design feature because 75% of centrifugal pump troubles (by analysis of service reports) trace to the suction side.

Removing the cover does not disturb any other parts.

Another good Motopump feature is the self-lubricating mechanical seal that eliminates leakage that occurs with a conventional packing box.

Not listed in Motopump specs is the most important:

- More than 50 years of pumping experience—that makes Yeomans pumps the best we can build, and the best you can buy.

Bulletin 1120 has complete Motopump information, including drawings. Call your local Yeomans representative—or write us.

☐ Send Bulletin 1120.

Maintenance Brief

IT'S HEALTHY FOR SUCTION PIPING TO GET A GOOD SLANT ON

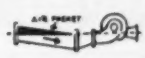
Here are two basic facts to remember about suction piping:

1. Horizontal piping should slope upward toward the pump.

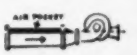
2. Any reducer which connects between pump and pump intake nozzle should be horizontal at the top . . . eccentric, not concentric.

Like this:

Right way— Up-sloping pipe and reducer horizontal at top prevent air-pocketing.



Wrong way— Down-sloping pipe creates air-pocket.



Wrong way— Tapered reducer not horizontal at top creates air-pocket.

An air pocket is bad news—the air may easily be sucked into the pump; causing loss of suction, which seriously endangers the pump.

Three good items to check:

☐ Check suction piping in present system—correct any down slope toward pump.

☐ Check here and mail to us for Centrifugal Pump Maintenance Manual 2000—a money-saver!

☐ Check here and mail to us for Manual 1112—has full information on Yeomans Centrifugals.

The Yeomans Guard, published several times a year, is a compendium of news and useful information covering the pumping of materials and the treatment of wastes, both domestic and industrial. We shall be pleased to send you the current issue if you'd care to have it. Ask your local Yeomans Representative—listed in the telephone book yellow pages under "Pumps"—or write direct.

YEOMANS BROTHERS COMPANY

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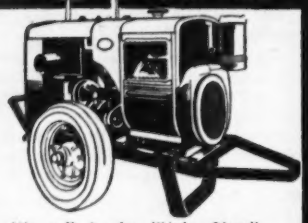
Manufacturers of: Centrifugal Pumps and Pneumatic Ejectors for Buildings, Municipalities, and Industrial Applications, and a Full Line of Waste Treatment Equipment.

THIS "COMPLETE"
WELLPOINT PUMP
more efficient, more economical, than more costly units



We call it the "Little Giant". Contractors call it a great big boon in a compact package. This little unit, with 6" suction and discharge, handles up to 1200 gpm — may be used for open sump work, for well-pointing and for jetting "Complete" wellpoints (if you're wise) into the ground. Its 1695 pounds are mounted in a 2-wheel chassis that is easily towed behind any vehicle. *Sold at a surprisingly reasonable price; Rented if you prefer it that way.* Particulars are free. Write today.

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WELLPOINT SYSTEMS

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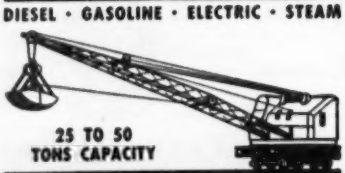


25 TO 50 TONS CAPACITY
THE OHIO LOCOMOTIVE CRANE CO.
BUCYRUS, OHIO

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
October 6 Massachusetts
STREETS AND ROADS
October 6 Massachusetts

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Fusco-Amatruda & Co.**, 59 Amity Rd., New Haven, Conn., CA, **$3,687,000**, PHA Conn 4-7 HOUSING exten. incl. 368-units, Elm Haven Ashmun-Webster and Canal Sts. NEW HAVEN, CONN. City Housing Auth., 195 Church St., New Haven, Conn. Bids May 28, awarded Sept. 18. CD 6/3, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
October 5 New Jersey
STREETS AND ROADS
October 5, 9, 13, 15 New Jersey October 6 Maryland
October 15 New York

BIDS ASKED—BUILDINGS

▲ **Pa., Harrisburg**—OFFICE—B.A. 11/5—General State Auth., 18 and Herr Sts., 18 story office bldg., 7th and Forster Sts., for State Dpt. Labor & Industry. $9,000,000. Plans deposit $75. Lacy, Atherton & Davis, 1729 N. Front St., archts. A. F. Jones, c/o owner, ch. engr. CD 8/5/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, **Walsh Constr. Co. and C. J. Langenfelder & Son, Inc.**, 122 E. 42 St., New York 17, N. Y., CA **$14,816,126**, est. $15,697,000, New York State Thwy.—Catskill sect.-Sub. 6. (Harriman-Newburgh), etc., Orange Co. (**Correction**—contractors address). CD 9/21, under CA.

BUILDINGS

LOW BIDS AND CONTRACT

▲ **Eagle Constr. Co.**, c/o Morris L. Tepman, archt., 26 Journal Square, Jersey City 6, N. J. Owner Builds, **$4,000,000**, 300 HOUSES on 90-acre tract off Kinderkamack Rd. to be called Continental Woods, EMERSON, N. J.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
October 6 West Virginia

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **WEST VIRGINIA**—West Virginia Turnpike Comn., 1340 Wilson St., Charleston, Zone 5, **R. B. Tyler Co.**, 1446 Levering St., and **Breslin Constr. Co.**, 1433 S. Preston St., both Louisville, Ky., LB, **$5,753,569**, concrete; **$4,021,941**, asphalt Contract 32, paving, drainage, misc. constr. 19.7 mi. Turnpike between Mile 68.3 (Station 1463 plus 14) at Standard Tunnel near town of Standard and Mile 88.0 (Station 89 plus 12) Ramp F-Charleston, incl. Chelyan, Kanawha City and Charleston Interchanges, Kanawha Co. Bids Sept. 22. CD 8/27.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
October 20 Wisconsin
STREETS AND ROADS
October 20 Wisconsin

▲ **Ill., Chicago**—HOUSING—B.A. 10/27—Chicago Housing Auth., 608 S. Dearborn St., Zone 5, 3 apartments, 22 row houses, incl. 570 units, 2nd phase, $5,600,000. Shaw, Metz & Dolio, 208 S. La Salle St., Zone 4, archts. CD 1/15.

▲ **Ill., Springfield**—STATE OFFICE—B.A. 12/15—State, Div. Architecture & Eng., Springfield, 7 story north and south wings and 8 story in center wing, H-shaped, 252x381 ft., limestone, rein.-con. state office, air-conditioned. $12,500,000. J. Fletcher Lankton and John N. Ziegele & Assocs., 1100 Main St., Peoria, archts.-engrs. CD 3/18.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **O. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich. CA $3,972,000, est. $3,000,000. superstructure 192x 250 ft., rein.-con., steel, marble, granite Henry & Edsel Ford AUDITORIUM, Woodward, Jefferson and Randolph Sts., DETROIT, MICH. City, J. E. Frawley, pres. Memorial Hall Comn., Detroit, Mich. Bids July 8, awarded Sept. 14. CD 7/14, under LB.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
October 22 Montana
STREETS AND ROADS
October 6 Iowa, Kansas October 22, Montana

BIDS ASKED—BUILDINGS

▲† **N. M., Los Alamos**—LABODATORY and ADMINISTRATION—B.A. 11/16—U. S. Atomic Energy Comn., Procurement Sec., Los Alamos, 4 story, 300,000 sq. ft., rein.-con. general laboratory and admin. bldg., Inv. 291, 54, 5. $3,500,000-$4,500,000.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Koedding Building Co.**, 5618 Easton Ave., St. Louis 19, Mo. Owner Builds. **$3,000,000.** 500 ranch HOMES, Forestwood subdivision adjacent to Hartnett Ave. and Chambers Rd., FERGUSON (ST. LOUIS 21), MO.

▲ **Chas. F. Curry Real Estate Co.**, 921 Baltimore St., Kansas City, Mo. Owner Builds, **$8,000,000**, garden type APARTMENT DEVELOPMENT, incl. 86 bldgs., 808 units, off street parking, on 40 acres, KANSAS CITY, MO. H. E. Duncan, Victor Bldg., Kansas City, Mo., archt.

▲ **Chas. F. Curry Real Estate Co.**, 921 Baltimore St., Kansas City, Mo. Owner Builds. **$24,300,000.** RESIDENTIAL DEVELOPMENT, incl. 180 houses, Vineyard Valley; 500 houses, Vineyard Wood; 1,000 houses Eastwood Hills, KANSAS CITY, MO. Stephen C. Kenney, 921 Baltimore St., Kansas City, Mo., and Hubert E. Duncan, Victor Bldg., Kansas City, Mo., archts. Hare & Hare, 114 W. 10 St., Kansas City, Mo., landscape archts. and city planners.

▲ **Melvin H. Glick & Co.**, 44 N. Brentwood Blvd., Clayton 5, Mo. Owner Builds. Est. **$2,000,000.** 38 RESIDENCES in Bon-Hills Subdivision, Olivette; 150 RESIDENCES in Oak Forest Subdivision, Olivette; 14 RESIDENCES in Blackberry Heights adjacent to Blackberry Ave. and Groby Rd., University City, OLIVETTE-UNIVERSITY CITY, MO.

▲ **Lummus Co.**, Milan Bldg., Houston, Tex. CA Est. **$4,000,000.** 9,000 bbl. per day COKING UNIT at refinery, DUNCAN, OKLA. Ucan Products Co. (Sunray Oil Corp.), 1st Natl. Bldg., Tulsa, Okla. CD 7/8.

▲ **Gibbs & Hill, Inc.**, Penn Station, New York, N. Y. CA **$11,500,000**, design and construct 100,000 kw. ELECTRIC POWER GENERATING PLANT, SAN ANTONIO, TEX. City Public Service Bd., 201 N. St. Marys St., San Antonio, Tex. CD 5/14/52.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
October 14, 15 California

▲ **Calif., Los Angeles**—B.A. 10/28—City, City Hall, Section II, La Cienega and San Fernando Valley Relief Sewer, Unit B. $3,000,000. CD 10/1/52.

BIDS ASKED—BUILDINGS

▲ **Calif., San Mateo**—SHOPPING CENTER—B.A. 10/20—David D. Bohannon, 859 San Mateo Dr., Hillsdale Shopping Center. $12,000,000. Walter Beckett & Associates, 173 Maiden Lane, San Francisco, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Morrison-Knudsen Co., Inc.**, and **J. A. Terteling & Sons, Inc.**, 319 Broadway, Boise, Idaho, CA, **$6,112,113**, extending apron, strengthen runway, taxiways and apron, airfield lighting and utilities systems, Mountain Home Air Force Base, ENG-45-165-54-2 MOUNTAIN HOME, IDAHO. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Sept. 1, awarded Sept. 14. CD 9/8, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Henry C. Beck Co.**, 1st Natl. Bank Bldg., Dallas, Tex., CA Est. **$9,000,000.** anhydrous ammonia PLANT, SALT LAKE CITY, UTAH. Mill Creek Chemical Co., Salt Lake City, Utah. Tears Engineers, 4617 Cole Ave., Dallas, Tex. engrs.

(Proposal Advertisements see pp. 46 to 49)

PHA bonds go fast

Investors become eager to buy tax-exempt issues

The Public Housing Administration's $125-million issue by 31 local housing authorities, backed by the Public Housing Administration, was quickly absorbed by the bond market last week.

In spite of the fact that only one syndicate of underwriters bid for the entire issue, net interest cost rose only slightly above that which the borrowing authorities paid when the last issue backed by PHA was sold last May.

This is another indication of the municipal and corporate securities (ENR Sept. 24, p. 21).

A few underwriters, headed by Bankers Trust Co. of New York formed a separate underwriters syndicate, which bid for part of the issue and succeeded in winning almost $23 million.

Meanwhile, prices of municipal bonds already on the market continued to rise whenever they changed ownership. The Dow-Jones municipal bond index last week showed its biggest increase in three months. This means local governments are finding it easier to borrow.

Furthermore, the municipal market will not have to absorb any more king-sized issues for several weeks. The Daily Bond Buyer's 30-day visible supply shows only about $115 million of scheduled new issues. The result is that bond dealers are cleaning slow-moving bonds off their shelves and will be hungry for more. Early this week, dealers listed about $107 million of bonds in their inventories, as compared with about $137 million just before the big PHA issue came to market.

$16-million steel plant planned for New England

Two nationally known companies have bought the stock of New England Steel Development Corp., which was formed some years back by the New England Council to build a $250-million integrated steel mill in New England. They have just applied for a certificate of necessity for accelerated amortization on a $26-million electric furnace. Plans are to produce specialty steel bars, rods, and shapes in a full range of sizes. Annual capacity, according to reports, would be 300,000 tons.

So far, identity of NESDC's new owners is a secret. But it is known that they are already producers and distributors of alloy steels. Ebasco Services, Inc., retained by the new owners as engineering and business consultant, is now making studies in site location design. Ebasco says it's convinced of the economic feasibility of the new furnace. Both a market and raw materials are available.

The location of the furnace is not expected to be at Waterford, Conn., the site once considered for the integrated plant. Reports are that the plant will be set up in eastern Massachusetts.

Business briefs . . .

• **Airport construction** for civilian traffic will keep going at a high level in the 1950s, according to F. B. Lee, Administrator of Civil Aeronautics. He told the U. S. Conference of Mayors that most cities can expect their airline passenger traffic to double by 1960, and predicted that jet transports probably will bring about changes in airport design.

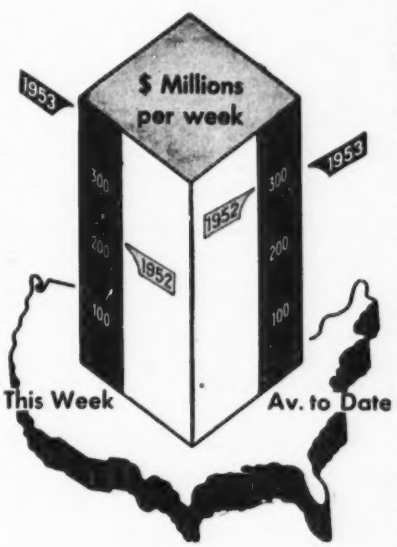
• **Savings banks bought mortgages** heavily during August, says the National Association of Mutual Savings Banks. Mortgage holdings are now about 45.7% of total assets, the highest percentage since 1935.

• **Canadian construction** for 1953 is estimated at a little less than $4.5 billion by the government's Bureau of Statistics. That's 7% over 1952.

• **Mortgage money shortage**—The Home Loan Bank Board reports that non-farm mortgages of $20,000 or less reached a new high in July of $1.8 billion. Savings and loan associations continued to be the dominant leaders, taking 39% of the total dollar volume.

Activity This Week

As reported to ENR
(in millions of dollars)



Contracts by type of work

Waterworks	$4.0	$187.4	$172.6	+9
Sewerage	4.6	339.0	225.3	+50
Bridges	10.6	525.4	302.1	+74
Highways	38.7	1,399.2	1,181.0	+18
Earthwork, waterways	1.1	300.8	381.6	−21
Buildings:				
Public, excl. hsg.	43.6	1,319.9	3,803.2	−65
Housg., pub.	5.4	327.2	524.3	−38
Housg., priv.	90.0	2,849.7	2,333.2	+22
Commercial	11.6	922.9	479.5	+92
Industrial	149.9	2,195.9	2,069.5	+6
Unclassified	23.1	1,411.6	1,018.0	+39
Total	**$382.6**	**$11,779.0**	**$12,490.3**	**−6**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

	Week of Sept. 24	Cumulative 39 Wks 1953	% chge 1952-53
Corporate securities	$98.6	$3,481.2	+24
State & municipal:			
Excluding housing	178.9	3,223.1	+35
Housing	...	212.9	−12
Federal loans	...	89.4	−71
Federal aid	...	770.9	+40
Total non-federal	**$277.4**	**$7,777.6**	**+24**
Federal approp:			
In U. S.	...	$1,566.7	−79
Outside U. S.	...	28.9	−85
Total new capital	**$277.4**	**$9,373.3**	**−32**

Amount of contracts let

	This Week	Cumulative 40 wks 1953	1952	% chge
Federal	$25.2	$1,180.1	$3,994.3	−70
State and municipal	98.7	3,865.6	3,222.0	+20
Total pub.	123.9	5,045.7	7,216.3	−30
Total priv.	258.7	6,733.3	5,274.0	+28
U. S. total	**$382.6**	**$11,779.0**	**$12,490.3**	**−6**

ENR indexes		1953	Base Years = 100 1913	1926	1949
Construction cost	Sept	610.17	293.31	127.91	
	Aug	611.87	294.13	128.27	
Building cost	Sept	436.10	235.74	123.97	
	Aug	436.98	236.22	124.22	
Volume	Aug	487	198	141	
	Jul	447	182	129	

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY. SEND ALL ADVERTISEMENTS TO CLASSIFIED ADVERTISING DIVISION, 29TH FLOOR, McGRAW-HILL PUB. CO., INC., 330 W. 42 ST., N. Y. 36, N. Y.

Bids: October 15, 1953

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 15th day of October 1953, by **Henry A. Cohen**, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 3				
		WILLIAM ROBINSON, District Engineer, 301 E. Water Street, Syracuse, New York				
Cayuga	FASS 53-16 FASS 53-17P	S.H. 590—Fosterville Co. Rd. 10; Fosterville-Throopsville Co. Rd. 10; FASS 51-25; Project S-364(2)	1.76	Bit. Mac. (Rd. Mix), Grad. & Pav.=1.63 Mi.; Bit. Mac. (Rd. Mix), Pav.=0.13 Mi.; Conc. Open Box Br. 31'	$13,000 Plans $10	$248,000
		DISTRICT No. 4				
		E. G. H. YOUNGMANN, District Engineer, Barge Canal Terminal, Rochester, New York				
Monroe	LOSP 53-4	Lake Ontario State Pkwy., Sect. C, East Manitou Road	0.97	Bit. Mac. Ty. 1=0.93 Mi.; Misc. Work=0.04 Mi.; Conc. Rigid Frame 104.7'	$40,000 Plans $15	737,000
		DISTRICT No. 7				
		R. W. SWEET, District Engineer, 444 Van Duzee St., Watertown, New York				
Jefferson	FASS 53-15	Evans Mills-Chaufty's Corners (Co. Rd.) Project S-336(1)	1.99	T.C. Bit. Mac. Ty. 1=1.98 Mi.; Misc. Work=0.01 Mi.	$9,000 Plans $10	150,000
		DISTRICT No. 10				
		M. E. GOUL, District Engineer, Montauk Highway, Babylon, L. I., New York				
Bronx	FABRP 53-1	Bronx River Parkway (Southerly Extension) Project U-979(12), Cont. 2	5.60	Landscaping & Misc. Work	$6,000 Plans $10	115,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Official Proposals Columns

of ENGINEERING NEWS-RECORD

are MUST reading, each week, for contractors, engineering-construction companies, equipment and materials manufacturers, all over the United States.

. . . and used regularly for over 50 years by government, state, county and municipal departments for advertising bids.

Official Proposal Division
ENGINEERING NEWS-RECORD
New York 36, N. Y.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4047) will be received at Palmer, Alaska, until November 3, 1953, for furnishing labor and materials for: Anchorage Substation, Eklutna Project, Alaska. Location: 3 miles southeast of Anchorage, Alaska. Principal items are: Excavation, 3,860 cu. yds; reinforced concrete, 155 cu. yds; furnishing and erecting steel structures, 44,500 lbs; furnishing and erecting prefabricated service building, lump sum; installing 18 transformers; installing control equipment, 8000 lbs; and other work. Completion time: 375 days. For particulars, address Bureau of Reclamation, Palmer, Alaska; or Building 53, Denver Federal Center, Denver, Colorado.

W. A. DEXHEIMER, Commissioner

DEPARTMENT OF THE INTERIOR: Bureau of Reclamation. Sealed bids (Specifications No. DC-4050) will be received at Maxwell, New Mexico until November 5, 1953, for furnishing labor and materials for earthwork and structures for rehabilitation of laterals and drains, Vermejo Project, New Mexico. Location near Maxwell, New Mexico. Principal items are: 215,000 cu. yds. excavation; 1,300 cu. yds. concrete; 38 M.b.m. timber bridges; 2,830 lin. ft. concrete and metal pipe; 22,400 lbs. metalwork; and other work. Completion time 630 days. For particulars, address Bureau of Reclamation, Maxwell, New Mexico; or Building 53, Denver Federal Center, Denver, Colorado.

W. A. DEXHEIMER, Commissioner

OFFICIAL PROPOSALS

Bids: October 27, 1953

Contract No. 44

Sealed proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia, until 1:00 P. M., Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia, until 2:00 P. M., Eastern Standard Time, on October 27, 1953, at which time and place said proposals will be publicly opened and read for Contract No. 44 which includes the construction of permanent utility buildings complete with mechanical services located at the following interchanges:

Beckley	Chelyan
Charleston	Kanawha City

and the removal, relocation and alteration of two temporary field office buildings presently located at Bluestone Bridge and Mossy Interchange respectively.

WEST VIRGINIA TURNPIKE COMMISSION
D. H. Morton
Chairman

Engineering News-Record

Reaches Your Local Contractors

Its distribution among the contractors of any one state is in proportion to the number of contractors situated in that state. The Official Proposal Columns of *Engineering News-Record* offer precisely the same efficient service to municipalities, counties, state and federal departments in every section of the United States.

OFFICIAL PROPOSALS

Bids: October 13, 1953

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

ROUTE 1 (1927) ROUTE U.S. 9-W (1953), SEC. 6-C

Route 1 (1927) Route U.S. 9-W (1953), Section 6-C, from Linwood Avenue to Lemoine Avenue, and Connection to Palisades Interstate Parkway; Grading, Paving and Bridges, Borough of Fort Lee, Bergen County. Federal Project No. U-91(3). Length 0.638 miles. The principal items of construction are:

Estimated:	
	Roadway Items
5,231 cu. yds.	Roadway Excavation—Earth
6,261 cu. yds.	Roadway Excavation—Rock
320,000 cu. yds.	Borrow Excavation
47,958 sq. yds.	4" Topsoiling
16,401 sq. yds.	Macadam Base Course, 6" & 8" thick
18,758 sq. yds.	Pavement Type MA-BC-1 & MA-BC-2
4,483 sq. yds.	Concrete Pavement Surface, Rein. 10" thick
2,084 lin. ft.	Rein. Concrete Culvert Pipe
1,939 lin. ft.	Corrugated Metal Culvert Pipe
8,666 lin. ft.	White Concrete Vertical Curb
6,241 lin. ft.	White Concrete Sloping Curb
6,598 lin. ft.	Rough Cut Timber Guard Rail
	Landscape Items
222	Trimming of Existing Trees
7 acres	Selective Thinning
	Bridge Items
6,317 cu. yds.	Concrete in Structures
294,935 lbs.	Reinforcement Steel in Structures
1,018,600 lbs.	Structural Steel in Structures
27 cu. yds.	Dimension Masonry
3,026 sq. ft.	Random Ashlar Masonry

Bids for the above will be received at the office of the State Highway Department, Asembly Room, Room 140, State Highway Office Bldg., 1035 Parkway Ave., Trenton, N. J. on Tuesday, October 13, 1953, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the revised statutes of New Jersey and supplements, and by P.L.413, 82nd Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 20 North VanBrunt Street, Englewood, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Bldg., 1035 Parkway Ave., Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:

STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

OFFICIAL PROPOSALS

Bids: October 20, 1953

Supplementary Air Conditioning for Control Cab

NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-170.003

Sealed proposals for the furnishing and installation of air conditioning for the control cab in the permanent control tower at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1111, 111 Eighth Avenue, New York 11, New York, until 2:30 P.M. Tuesday, October 20, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1111, and copies will be furnished upon deposit of $10.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, October 1, 1953

Bids: October 13, 1953

Interior Finish for First Aid Room

NEWARK AIRPORT
PASSENGER TERMINAL
CONTRACT NA-170.054

Sealed proposals for interior finishes for the First Aid Room in the Passenger Terminal at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1111, 111 Eighth Avenue, New York 11, New York, until 2:30 P.M. on Tuesday, October 13, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1111, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, October 1, 1953

U. S. Government

St. Paul District, Corps of Engineers, U.S. Army, 1217 U.S. Post Office and Custom House, St. Paul 1, Minnesota—Sealed bids will be received at this office until 2:00 P.M., C.S.T., 8 October 1953, and then publicly opened for Channel Improvement, Mustinka River, near Wheaton, Minnesota.

Department of Commerce, Bureau of Public Roads, September 16, 1953. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., OCTOBER 14, 1953, for Project 2B6C5, Shenandoah National Park, Warren, Page and Rappahannock Counties, Virginia. 18.978 miles paving and other work from Jenkins Gap to Thornton Gap. The approximate quantity of the principal item is 35,000 tons Type H-1 Asphalt Pavement, Liquefier Type. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the address given above or Bureau of Public Roads, 920 South Jefferson Street, Roanoke, Virginia. H. J. Speiman, Division Engineer.

OFFICIAL PROPOSALS

Bids: October 29, 1953

NOTICE TO BIDDERS

Contract C-36
Contract C-37
Contract C-36&37

Sealed proposals will be received by the Ohio Turnpike Commission until 10:00 A.M., Eastern Standard Time, October 29, 1953 for the performance of each of the Contracts enumerated above.

The work covered by Contract C-36 consists generally of the construction of grading, drainage, structures, and paving of approximately 4.1 miles in Construction Section 36 of Ohio Turnpike Project No. 1, beginning at a point about 750 feet west of Hirt Road at Turnpike Centerline Station 770+00 in Sandusky County and extending eastwardly to a point about 1,600 feet east of Dalton Road at Turnpike Centerline Station 985+97 in Sandusky County, and the construction of engineer's office building and facilities on or near the site of the work.

The work covered by Contract C-37 consists generally of the construction of grading, drainage, structures, and paving of approximately 4.0 miles in Construction Section 37 of Ohio Turnpike Project No. 1, beginning at a point about 400 feet east of the Sandusky River at Turnpike Centerline Station 557+51.38 in Sandusky County and extending eastwardly to a point about 750 feet west of Hirt Road at Turnpike Centerline Station 770+00 in Sandusky County, and the construction of engineer's office buildings and facilities on or near the site of the work.

The work covered by Contract C-36&37, which covers the combination of Construction Sections 36 and 37, is the construction as above and elsewhere herein generally described for the individual Construction Sections.

In Construction Section 36, the principal structures to be built are five reinforced concrete box culverts, four single bridges, and seven twin bridges (each twin bridge consisting of two separate but nearly identical and parallel structures). All of these bridges are steel beam bridges of from one to four spans each supported on reinforced concrete abutments and bents. The abutments and bents for these bridges are to be on cast-in-place reinforced concrete piles.

In Construction Section 37, the principal structures to be built are two reinforced concrete box culverts, five single bridges, and three twin bridges (each twin bridge consisting of two separate but nearly identical and parallel structures). All of these bridges are steel beam bridges of from one to four spans each supported on reinforced concrete abutments and bents. The abutments and bents for these bridges are to be on cast-in-place reinforced concrete piles.

Approximate quantites of the major items of construction for Contract C-36 are as follows:

Roadway Excavation	(cu. yds.)	59,300
Borrow	(cu. yds.)	1,272,300
Structural Concrete	(cu. yds.)	14,800
Reinforcing Steel	(lbs.)	2,179,000
Fabricated Structural Steel (excluding furnishing and fabrication)	(lbs.)	2,903,000
Concrete Bearing Piles	(lin. ft.)	48,000
10" Reinforced Concrete Pavement	(sq. yds.)	108,000

Approximate quantities of the major items of construction for Contract C-37 are as follows:

Roadway Excavation	(cu. yds.)	62,800
Borrow	(cu. yds.)	875,000
Structural Concrete	(cu. yds.)	6,080
Reinforcing Steel	(lbs.)	909,000
Fabricated Structural Steel (excluding furnishing and fabrication)	(lbs.)	1,752,000
Concrete Bearing Piles	(lin. ft.)	27,000
10" Reinforced Concrete Pavement	(sq. yds.)	109,800

For each contract, fabricated structural steel and structural expansion and/or contraction joints will be furnished by the Commission.

This is a readvertisement of the work to be done on each of these Construction Sections. Proposal forms, Plans, Cross Sections, and Special Provisions for Construction Sections 36 and 37 as formerly advertised are now obsolete. Any person who obtained any of these documents pursuant to the former advertisement and desires to bid for said Construction Sections must obtain a new set of Contract Documents for the letting advertised in this notice, except that he need not obtain a new set of General Specifications or of those Supplemental Specifications already in his possession and applicable to any or all of these Contracts as set forth in the Special Provisions comprising a part of the new Contract Documents.

OFFICIAL PROPOSALS

Copies of the Plans and General Specifications for said Contracts are immediately available for public inspection or purchase at the office of the Chief Engineer, Ohio Turnpike Commission, 139 East Gay Street, Columbus 15, Ohio. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

General Specifications for Ohio Turnpike Project No. 1	$ 5.00
Plans (also soil profiles and boring logs), per set, per construction section	15.00
Cross Sections, per set, per construction section	25.00

Forms or copies of all remaining Contract Documents, including Proposals for each of the Contracts set forth above; of the Affidavit which must accompany any such Proposal; of this Notice to Bidders; of the Special Provisions applying to said Contracts; of the Contract to be entered into with the (or each) successful Bidder; and of the Contract Bond to be furnished with such Contract will be furnished upon request and without charge to any interested person at the aforesaid Chief Engineer's office.

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Each Proposal must be accompanied by a certified check or checks on a solvent bank or banks, payable to the order of the Ohio Turnpike Commission in an amount not less than $100,000 per Construction Section covered by the Contract on which the Bidder bids. If the Bidder shall tender bids for more than one Contract, said amount shall be not less than $100,000 per Construction Section covered by the Contracts on which he shall tender Proposals; provided, however, that if one or more Construction Sections are included in more than one Contract for which the Bidder shall tender Proposals, the Bidder need furnish only $100,000 per each such section, notwithstanding such duplication. The Commission may at any time cash any such check. Each such check or the proceeds thereof will be held by the Commission as a guaranty that, if any Proposal guaranteed thereby is accepted, a Contract will be entered into and the performance of the Proposal secured.

Each such check or the proceeds thereof will be returned or forfeited as provided in paragraphs G-3.03 and G-3.06 of the aforesaid General Specifications, provided that if there be a forfeiture, it shall be of an amount equal to $100,000 per Construction Section covered by the Proposal with respect to which the forfeiture occurs, and any excess will be returned to the Bidder.

All bids must be received at or before 10:00 A.M., Eastern Standard Time, October 29, 1953, in the offices of the Ohio Turnpike Commission, 139 East Gay Street, Columbus 15, Ohio. At said hour, the bid box will be removed to the Neil House Hotel, 41 South High Street, Columbus, Ohio, where all Proposals will be publicly opened and read.

The award of any of the above-enumerated Contracts, if any award be made, will be to the Bidder or Bidders whose Proposal or combination of Proposals is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

OHIO TURNPIKE COMMISSION

Make Plans Accessible to Distant Bidders

Plans and specifications for inspection by distant bidders may be filed at any of ENGINEERING NEWS-RECORD offices without charge. Or a sufficient supply may be deposited at such of our offices as seem desirable subject to your usual requirements in the matter of deposits, etc. (We assume full responsibility for return of plans or collection and return of deposits).

The minute

you seal the envelope

you seal the verdict...

NO ONE but a bidder can decide, practically, whether he, or someone else, will be the successful bidder on any contract . . . because it is you — the bidder — who decide what you will charge to do the work. No one can decide that but you. So, you actually "write your own ticket."

NATURALLY, you must deliver certain specified materials and perform definite functions, within a certain time—that much of the job is something over which you have no control. But . . . it is when you begin to plan ways and means of DOING the job that you start to win or lose it. If you can do it more quickly, with less loss of motion, and, possibly, with fewer man-hours to charge against the job—in other words, at a lower cost to you — you will have the "edge" you need to make you the successful bidder.

LOW cost operation is usually the result of a thorough knowledge of the most efficient methods—and the use of modern equipment. You will be well repaid through your reading of ENGINEERING NEWS-RECORD—both editorial and advertising.

OFFICIAL PROPOSALS

Bids: October 13, 1953

Water Distribution System

Sealed bids will be received until 5:00 P.M. EST, October 13, A. D., 1953, in the office of the Town Clerk, Lauderdale-By-The-Sea, Florida for
EXTENSION OF WATER DISTRIBUTION SYSTEM

Plans, specifications and bidding blanks may be obtained from the office of the Town Clerk.

A deposit of $25.00 for plans and specifications and of $15.00 each for additional copies of plans or specifications will be required. All deposits for plans and specifications will be refunded upon their return in good condition within ten (10) days of the opening of bids.

A certified check or bank check for 2% of the total amount of the bid, made payable to Town of Lauderdale-By-The-Sea, Florida shall accompany each proposal as evidence of good faith and responsibility of the bidder. This check shall be retained by the payee as liquidated damages should the bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the proposal, in the event the proposal of the bidder is accepted.

Any bid accepted by the Town of Lauderdale-By-The-Sea, Florida shall be subject to the ability of said Town to validate and sell indentures, certificates, or bonds in an amount sufficient to cover the overall cost of the extension of the water system in said Town.

The Town of Lauderdale-By-The-Sea, Florida reserves the right to reject any or all bids or to waive any irregularities in bids.

Carole Garland—Town Clerk

Bids: November 2, 1953

East Side and Stevens Creek Intercepting Sewer Systems

The Sanitary District of Decatur, Macon County, Illinois, will receive sealed bids for:
East Side Intercepting Sewer System, Divisions A. B. C. and D, Project Ill. 11-P-1011, and
Stevens Creek Intercepting Sewer System, Divisions E. F. G, & H, Project Ill. 11-P-1012

until One-thirty o'clock P.M. (1:30 P.M.) Central Standard Time (C.S.T.) on the Second (2nd) Day of November, 1953, in the offices of the Sanitary District of Decatur, Room 1151 Citizens Building, in the City of Decatur, State of Illinois, at which time and place all bids will be publicly opened and read aloud.

The successful bidder, or bidders, will be required to furnish a satisfactory performance bond.

The Contract Documents, including plans and specifications, are on file and open to public inspection, in the office of the Sanitary District of Decatur, Macon County, Illinois, in the said Citizens Building.

Bid blanks will not be issued to any prospective bidder later than twenty-four hours (24) before the date of the letting.

Copies of each set of documents, including proposal forms, plans and specifications, may be obtained by depositing with the Clerk of the said Sanitary District of Decatur $50.00 for each,—the East Side Intercepting Sewer System and for the Stevens Creek Intercepting Sewer System. Copies of the documents may also be obtained from Warren & Van Praag, Inc., 253 South Park Street, Decatur, Illinois, Consulting Engineers for the said Sanitary District. The amount of the deposit for one set of documents for either of the projects will be refunded to each actual bidder who returns the plans and documents in good condition within ten (10) days after the opening of bids. Twenty-five Dollars ($25.00) will be refunded for each of all other sets of documents so returned for either of the said projects.

The Sanitary District of Decatur, Macon County, Illinois, reserves the right to reject any and all bids and waive any informalities in bidding.

A certified check or bank draft, payable to the Sanitary District of Decatur, Macon County, Illinois, or a satisfactory bid bond executed by the bidder and a surety company, in an amount not less than five per cent (5%) of the bid shall be submitted with each bid.

No bid shall be withdrawn after the opening of bids without the consent of the Sanitary District of Decatur, Macon County, Illinois, for a period of sixty (60) days after the scheduled time of closing bids.

It will be mandatory upon the contractor to whom the contract is awarded, and any subcontractor under him, to pay not less than the prevailing wage rates that may be in effect at the time of receiving bids, including the prevailing rates for legal holiday and overtime work, to all laborers, workmen and mechanics employed by him in the execution of the contract. The definition of overtime shall be as set out in agreement between Contractors and various unions.
Sept. 14, 1953

SANITARY DISTRICT OF DECATUR, ILLINOIS
J. D. Johnson, President
L. V. DeWitt, Clerk

Bids: October 15, 1953.

Towers and Cable Anchorage Steelwork, Contract No. 4

DELAWARE RIVER PORT AUTHORITY
Administration Building
Camden, New Jersey

Sealed bids will be received for the construction of Towers and Cable Anchorage Steelwork for a Suspension Bridge over the Delaware River connecting Packer Avenue in Philadelphia, Pennsylvania and Gloucester City, New Jersey, known as Contract No. 4, at the office of the Secretary of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey until 1:30 P. M. Eastern Standard Time October 15, 1953 at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $250,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania or Camden, New Jersey, and must not be enclosed with the sealed bid. The Surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 percent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO
Secretary

Bids: October 16, 1953

Aerial Topographic Maps & Drainage

NOTICE TO BIDDERS

Sealed bids will be received by the Superintendent of Highways and Bridges, Town of Darien, Connecticut, at his Office in the Town Hall until 4 PM, October 16, 1953 for Aerial Topographic Maps and Drainage Study of the Township Area of the Town of Darien, Connecticut in accordance with plans, general conditions, specifications and contract documents on file in the office of the Superintendent of Highways and Bridges where they may be examined.

Each bid-proposal must be accompanied by a deposit in the form of a certified check made payable to the order of the Town of Darien, Connecticut, in the sum of two thousand ($2,000.).

Bid bonds will not be accepted. Bid-proposals may be submitted to the Superintendent of Highways and Bridges by registered mail or by personal delivery providing, that receipt of same must be effected on or before the date and time stated above.

Copies of the plans, specifications and the contract documents may be obtained at the office of the Superintendent of Highways and Bridges upon application in person or by mail. Only qualified bidders will be given specifications and the other document forms.

The Town expressly reserves the right to reject any or all proposals or to accept such proposal as appears to be in the best interest of the Town, with or without giving the reason therefor.

DEPARTMENT OF HIGHWAYS & BRIDGES
By Walter A. Bates, Superintendent
Date Sept. 21, 1953

Bids: October 20, 1953

Clearing and Grubbing Pepacton Reservoir

CONTRACT 436

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, October 20, 1953, for Contract 436, for clearing and grubbing the middle portion of the Pepacton reservoir, in preparation for the storage of water. The work will comprise the clearing of approximately 1,750 acres, the grubbing of about 550 acres, and required excavation and removal of excrementitious material, all as set forth in the specifications. This portion of the Pepacton reservoir is located in the Towns of Andes and Middletown, Delaware county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of forty thousand dollars ($40,000.00) for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1316 at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: October 6, 1953

Contract No. 29, 29A, 29B and 29C

Sealed proposals will be received by the West Virginia Turnpike Commission for:

The work to be done under this Contract consists in performing the required Paving and Drainage for approximately 20 miles of the West Virginia Turnpike including curbs, gutters, toll plaza and miscellaneous items to complete the project, ready for traffic. This work is located between Princeton, Mile 0, and Ghent, Mile 20, Mercer and Raleigh Counties, West Virginia, and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

The principal items of work include:
Contract 29

	Approximate Quantity Rigid Type Alt. 1	Flexible Type Alt. 2
Rigid Pavement, Alternate 1 Cement Concrete Pavement	357,200 s. y.	
Flexible Pavement, Alternate 2 Asphaltic Concrete Pavement		60,000 tons
Other Items		
Culvert Pipes and Underdrains	14,000 l. f.	14,000 l. f.
Select Subbase	661,500 tons	657,100 tons
Macadam Base Aggregate	15,200 tons	138,700 tons
Emulsified Asphalt	287,600 gals.	2,248,600 gals.

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 9:00 A. M. Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia until 10:00 A. M. Eastern Standard Time, on October 6, 1953, at which time and place said proposals will be publicly opened and read.

WEST VIRGINIA
TURNPIKE COMMISSION
D. H. Morton, Chairman

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: "OPPORTUNITIES" :EQUIPMENT :USED OR RESALE

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Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.
POSITION WANTED and Individual Selling Opportunity Wanted undisplayed rate is one-half of above rate, payable in advance.
Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.
SEND NEW ADVERTISEMENTS to N. Y. office, 330 W. 42nd St., N. Y. 36, for October 15th issue, closing October 5th.

Replies are forwarded each day as received at each of the offices mentioned without additional charge.
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED RATE

The advertising rate $17.10 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.
An advertising inch is measured ⅞ inch vertically on one col. 3 col.—30 inches to a page. E.N.R.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-third year. Write today.*
WILSON Engineering Corp.
College House Offices—HARVARD SQUARE, CAMBRIDGE, MASS.

ESTIMATORS

Fully experienced in industrial and commercial buildings and mechanical installations (machinery, equipment, piping, etc.)

These openings in Cleveland Office offer excellent working conditions with paid vacations, sick leave and participating group insurance program. Presently working scheduled 5 day 45 hour work week.

Replies will be treated confidential and arrangements will be made to interview selected applicants. Please submit complete resume stating experience, education, salary required and date available to

THE H. K. FERGUSON COMPANY
Engineers and Builders
Ferguson Building Cleveland 14, Ohio

WANTED!!
CHIEF ESTIMATOR

Substantial western building contractor, main office Los Angeles, has exceptional opportunity for Chief Estimator experienced in commercial and industrial work. Reply giving complete qualifications and salary range. Strictly confidential.

P-9338, Engineering News-Record
1111 Wilshire Blvd., Los Angeles 17, Calif.

BRIDGE - HIGHWAY ENGINEERS
DESIGNERS - DRAFTSMEN

For work on major bridges, expressways, and turnpikes. Permanent positions with periodic promotions depending on experience and ability. Paid vacations, sick leave, hospitalization and life insurance. Include experience, salary requirement in first letter. Photograph optional.

Howard, Needles, Tammen & Bergendoff
Consulting Engineers
1805 Grand Ave., Kansas City 8, Mo.

SALARIED POSITIONS $3,500—$35,000

We offer the original personal employment service (established 43 years.) Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

PROJECT ENGINEER

Must have large experience in design, estimates and administrative capacity on process plants involving mechanical, electrical, chemical and structural aspects. An opportunity for qualified man with expanding engineering firm, Southeast, with national operations. Write fully

P-9199, Engineering News-Record
330 W. 42 St. New York 36, N. Y.

CIVIL ENGINEERS

Work on hydro-electric power developments. Write giving full experience record, qualifications and salary desired.

HARZA ENGINEERING COMPANY
400 West Madison St., Chicago 6, Illinois

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

EXPERIENCED ESTIMATOR and Chief Engineer between the ages of 35 and 45, to make quantity take-offs, help price, buy, expedite and do some field supervision. All our work is competitive. We specialize in industrial, commercial and public works. Only experienced and high-grade men need apply. Permanent job for right man. Excellent salary and bonus. Office located in Ohio. Send qualifications, experience and photograph if available. P-9112, Engineering News-Record.

MECHANICAL ENGINEER, with pile driving and rigging experience. Reply P-9237, Engineering News-Record.

WANTED—BUILDING Construction Estimator —By old established North Jersey Company— Must be experienced with emphasis on Industrial Construction. Must have engineering background and be able to handle the complete estimate. Excellent Salary—Profit Sharing—Opportunity to advance—Age 32-42. P-9232, Engineering News-Record.

ENGINEER—HEAVY Construction—Extensive experience in Highway Bridges—Overpasses —Foundations—Excavation—Water Conditions —Concrete in all phases. Must be able to handle bidding—Cost analysis. Profit Sharing—Fine Opportunity if capable. P-9233, Engineering News-Record.

BUILDING CONSTRUCTION Sales Engineer— To contact Industrial Firms for design and construction services. Must have construction engineering or architectural experience. Should have some established contacts but will consider ambition, intelligence and interest of applicant. Minimum salary $10,000, plus Profit Sharing. P-9234, Engineering News-Record.

POSITIONS VACANT

HELP WANTED Male Building Estimator and Quantity Take-Off Man. Graduate Engineer preferred. Thoroughly experienced, permanent position with well established contractor with top-notch organization bidding competitively public works and commercial buildings throughout the South. Stanley W. Newman Company, Inc., P. O. Box 1646, Mobile, Alabama.

GROUTING & DRILLING Foremen. Nationally known construction company has openings for foremen to run foundation grouting and/or drilling crews. Excellent opportunity to take over job supervision. Give full details in first letter. Intrusion-Prepakt, Inc., 779 Union Commerce Bldg., Cleveland 14, Ohio.

STRUCTURAL & MISC. Steel detailer—must be experienced, excellent climate, good housing conditions, top wages. Give full particulars. Tucson Iron Works, Box 1949, Tucson, Arizona.

WANTED EXPERIENCED Chief of Party, Civil Engineer for Construction, Municipal and Land Surveys. State age, experience, and references. P-9270, Engineering News-Record.

BRIDGE DESIGN Engineer experienced in highway bridge design. Capable of executing complete design calculations and supervising group for preparation of highway bridge contract plans for expressway project located in Maryland. Salary $7,500 per year. Furnish full information regarding education, age, experience, and references. Replies confidential. P-9317, Engineering News-Record.

HIGHWAY BRIDGE Design Engineer fully experienced in highway bridge design. To take full charge of bridge department on large expressway project located in Maryland. Reply stating education, experience, age, references. Salary open. Replies confidential. P-9318, Engineering News-Record.

ENGINEER-ESTIMATOR. Young graduate civil engineer with heavy construction field experience and capable of assuming increasing responsibility leading to position as chief estimator for prominent general contractor operating throughout South and Southwest. Write full particulars, including education, availability, personal details and salary requirements to P-9302, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

SALES ENGINEERS—Albany, New York and Pittsburgh, Pennsylvania with established national concern selling prefabricated metal products to engineering and construction markets. Position offered is permanent and presents excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Age 24 to 30. SW-8254, Engineering News-Record.

WANTED MANUFACTURER'S representatives in the bulk materials storage field wanted by company eminent for thirty-five years. Large unit sales. Write giving information on lines now represented and area of coverage. Give personal resumé and references. East of Mississippi only. Vice President—Sales, Box 356, Marietta, Ohio.

EMPLOYMENT SERVICE

SALARIED PERSONNEL. $3,000-$25,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

STRUCTURAL ENGINEER, licensed graduate, 28 years office and field, industrial buildings, chemical plants, waterfronts, underground structures, etc., available for permanent responsible position. PW-9195, Engineering News-Record.

CONSTRUCTION EXECUTIVE. Grad. Eng. 20 years successful background field and administrative management in all fields of construction, present salary $12,000. Desire change to position that offers possibilities and future security. PW-9188, Engineering News-Record.

(Continued on the opposite page)

Engineers—Foremen—Office Men

Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.
GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
411 So. 5th Ave. Lake Worth, Florida

POSITIONS WANTED

(Continued from opposite page)

BUILDING CONSTRUCTION Executive. Thoroughly experienced estimating; buying subcontracts; materials, etc.; solicitation of new business and field management. PW-9185, Engineering News-Record.

CONSTRUCTION EXECUTIVE, proven record: Project Manager; Chief Estimator; Office and Field Executive. General Contracting. Available at an early date. PW-9118, Engineering News-Record.

ENGINEER FOR Japan, Industrial, Construction exper. Immediately avail. Constr. Plant, Install-service, Design, field, sales. Box 52, Main P.O. San Francisco.

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CONSTRUCTION EQUIPMENT Manufacturer or progressive dealer: Do you need a top notch sales manager or right hand vice pres.? A young energetic executive with 15 years experience. Good practical engineering background. Knowledge of all phases of equipment business, sales, service, application, advertising and dealer set-up. Write to PW-9217, Engineering News-Record.

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ARCHITECTURAL CIVIL Engineer. B.Sc. Degree in Civil Engineering, England, and Licensed Architect with 25 years global experience of office and field engineering of all types desires position as architectural structural engineer or project constructional engineer. Can handle complete designs, estimates, and field work, and is a very steady hard worker with A1 references and integrity. Assignment domestic preferred. PW-9323, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. 20 years experience of heavy construction. Buildings, Sewage disposal plants, highway bridges, mills, etc. Capable of assuming full responsibility. Available immediately. Good references. Prefer middle or far West. PW-9325, Engineering News-Record.

CIVIL-MANAGEMENT Engineering Graduate EIT, NY—Desires supervisory position with small-medium sized General Contractor within 50 miles NYC. Available 45 days. PW-9266, Engineering News-Record.

CIVIL ENGINEER. Masters Degree, 4½ yrs. experience structural testing, product development research, and teaching. PW-9267, Engineering News-Record.

CONSTRUCTION ENGINEER and party chief —17 years experience—age 42—desire job overseas—prefer Spain—would consider South America. PW-9274, Engineering News-Record.

CHIEF CONSTRUCTION ESTIMATOR

15 years experience:
Cost Estimating
Architectural Specification Writing
Architectural & Structural Design
Age 39 . . . . . available 3 weeks
Sober, industrious, non-temperamental. Write for resume.

PW-9306, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

AVAILABLE

Project Manager, age 39, BSCE, excellent health, 18 yrs. broad experience industrial-chemical construction management multi-million dollar projects. Know costs, negotiation, labor and customer relations. Excellent references and connections. Available Oct. 1st.

PW-9197, Engineering News-Record
520 N. Michigan Ave. Chicago 11, Ill.

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PIPELINE AND DIRT MOVING EQUIPMENT

THURSDAY, OCTOBER 15th at 11 A.M. (CST)

LITTLE ROCK, ARKANSAS, 1615 East 15th Street

35 TRACTORS—9 Cat D-8 Tractors, Serial Numbers from 1H Series to 2U-8039, are all equipped with either Cardwell or Trackson Sidebooms. Cat 75 w/Cardwell sideboom. 2 Cat D-7's with angle dozers, 24 front pcu and Hyster rear winches, 4T Series. Cat D-7 tow tractor, 4T, w/Hyster winch. 3 Cat D-7's w/Cardwell or Trackson pipelayers, 7M Series. AC HD-20 w/like new angle dozer, Baker DDPCU. AC HD-19 w/hyd angle dozer and Carco rear winch. TD14A & TD-14 tow tractors w/Isaacson & Carco rear winch. 2 TD-14's w/Cardwell pipelayers. 3 TD-18A and 3 TD-18 Tow Tractors w/Lufkin, Hyster or Carco rear winches. 7 TD-18's w/Cardwell pipelayers.

DRAGLINES & BACKHOES—Lorain 80J Dragline, S/N 20889, Cat D-13000 engine, 60' boom, 2 yard bucket—A '51 machine with very little use, in excellent condition. 2 Lorain L50K backhoes, Cat D-318 engines, one has swamp tracks, '50 & '51 machines. 2 Insley K-12's, one backhoe & 1 dragline, Cat D-311 engines.
Hyster "Karry-Krane" Model KC, 5 ton cap. IHC TD-9 hyd end loader.

NOTE:—All of this equipment is in very good condition, right ready for the job, the rails & rollers on the tractors, except 3 or 4, are very good. Inspect and operate at any time before the sale.

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GENERAL SUPERINTENDENT; 26 years heavy Const., experience, 16 yrs., in Capacity of Supt., prefer foreign location. 10 yrs., foreign work. Two yrs. Civil engineer, Single, 45 yrs. of age. Best of references present Employer may be contacted. Some Spanish. PW-9269, Engineering News-Record.

CONSTRUCTION COMPTROLLER—Eighteen years experience on heavy industrial buildings, dams, and engineering projects. Able to organize and coordinate all office functions from award to final. PW-9268, Engineering News-Record.

CONSTRUCTION ENGINEER—29—Graduate C.E. 2 years power plant design, 3½ years job engineer, factory and paper mill construction. Special interest in quantities and costs. Will travel. PW-9308, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT 25 yrs. experience on sewage and water plants, bridges, wharfs, schools and industrial buildings. Competent estimator. PW-9307, Engineering News-Record.

MECHANICAL ENGINEER—29 BME, P.E. N.Y. State. Contractor and consulting office experience. Seeks small mechanical contractor requiring design, estimating, supervision, customer contacts. Will Relocate. PW-9315, Engineering News-Record.

PROJECT MANAGER: Available at once. Engineering background with degree in civil engineering. Registered state of Penn. Bridges—dams—(Concrete)—(Earth) Power Plants Tunnels—commercial bldgs—housing projects. Oil refineries—pipe lines—docks—reforced concrete structures—heavy foundations—pile driving—coffer dams—manage—organize any size project with job "know how", Just finished 3 year contract Puerto Rico. PW-9295, Engineering News-Record.

CARPENTER FOREMAN experienced heavy construction. A1 Reference. P. Benzlowig, P. O. Box 14, Rosedale 22, N. Y. LA-8-4734.

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1953 C. E. Graduate will be available by December 1. Excellent record in college. Interested in sales, construction, and design. South, Southwest or Midwest preferred. PW-9339, Engineering News-Record.

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FS-9279, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

Additional Auction Advertising on page 53

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Sectional Boom Lengths to 130 Feet

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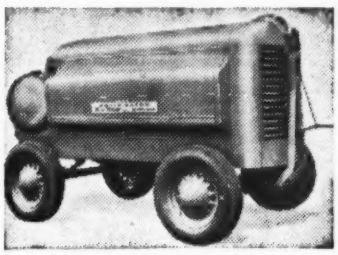

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Additional Auction Advertisement on page 51

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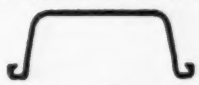

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NEW PRODUCTS

Hardpan and pavement no problem for bucket with pile driver action

The Quick-Way bucket operates with a pile driver action that is said to force it through hard-to-dig materials and provides a vertically walled hole only slightly larger than the spread of the open bucket. This feature is of particular importance to street repair foremen because the smaller the hole the better when it comes to resurfacing after the fill in.

The hammer drive and bucket are mounted on a common frame. As the hammer drops the impact is transmitted through heavy coupling arms from the base of the hammer plate to the teeth of the bucket. Starting from this vertical bite the jaws of the clam shell move in on the radius from both sides to break up the materials further and pick up a full bucket load.

The bucket closes with a single line, said to give much faster action than a conventional bucket, and there are no sheaves or counterweights down inside the bucket.

When the driven hammer action is not needed, the hammer can be bolted to the bucket head to provide digging weight to the bucket. Also, the hammer weights are interchangeable and can be added or removed as necessary.

Substantial savings in time and money are claimed for the machine even where cement or very thick black top is encountered and jack hammers must necessarily start the hole. The attachment is made so it will swivel at different angles for bell holes and street repairs in close quarters.

As a materials handling bucket, the attachment is reportedly fast and efficient, and the same bucket, without changes, may be used to pick up and load a variety of material.

With a trench hoe boom the attachment may be used to dig to a depth of ten feet or with a crane boom, 30 ft. or more. Various size buckets can be furnished to meet requirements. Quick-Way Truck Shovel Co., 2401 E. 40th Ave., Denver 16, Colo.

Scaffolding brackets set the stage

With a pair of ladders and two Step-A-Time scaffold brackets, one man can erect an adjustable scaffold that is said to be safe and efficient.

The brackets are nailed or bolted to the structure at some convenient elevation—the fascia board in photo—and the ladders are clamped in place against the extending arm of the bracket. The stage is set across the rungs of the ladders.

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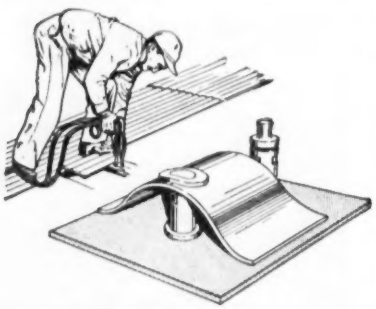

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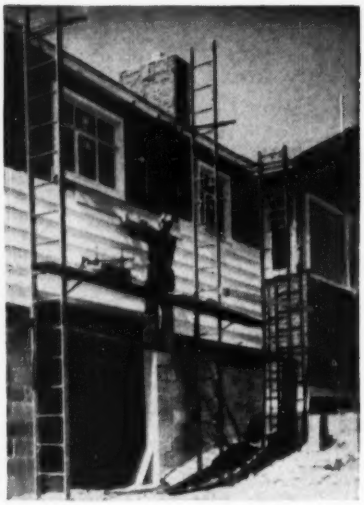

in shelf and guard rail brackets that clamp to the outside uprights of the ladders. The arm of the shelf bracket extends in line with the ladder to support a 12-in. wide shelf. The guard rail bracket holds a 2 x 4 or 2 x 6. BEAVER ART METAL CORP., ELLWOOD, PA.

Flooring material repels oil and grease

A type of oxychloride cement, reportedly highly resistant to oil, grease, fats, and solvents of many kinds, is being manufactured under the name Sylox for use as a flooring material.

The cement is proportioned to cover a pre-determined area at an average depth of ¼ in. and does not require the addition of any other outside ingredient. This depth is said to be sufficient to give adequate protection under most circumstances encountered in machine shops, spray booths, bakeries, etc., where grease resistance is desired.

According to the manufacturer, Sylox may be applied on either old or new surfaces directly over concrete or wood. It is available in several colors. UNITED LABORATORIES, INC., 16801 EUCLID AVE., CLEVELAND 12, OHIO.

New Products briefs . . .

• **1,000-watt electric plant**—A self-contained electric plant; manufactured by Universal Motor Company, 494 Universal Drive, Oshkosh, Wis.; is said to be especially suited for portable service. The electric plant develops 1,000-watt a-c in a "packaged" unit taking less than 2½ cu ft of space and weighing less than 95 lb. Powered by a heavy-duty, one-cylinder, air-

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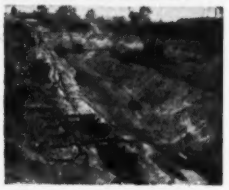

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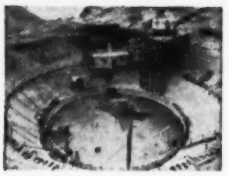
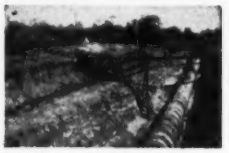


SEWERAGE

or any other type of wet work



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• **Adjustable trestle**—A light-weight trestle for the support of scaffolding at heights from 2 to 12 ft. has scrap lumber legs that can be adjusted individually by cutting the approximate height desired, then sliding up or down and securing at the exact required height. Its manufacturers, the Superior Scaffolding Co., Culver City, Calif., claim that this Jiffy Jack can be erected quickly without nails and the wood salvaged for other uses. East of the Mississippi, the Superior Scaffolding line is produced by the National Plaster Block Co., 2238 N. 27th Street, Philadelphia, Pa.

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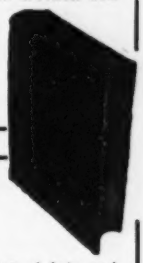

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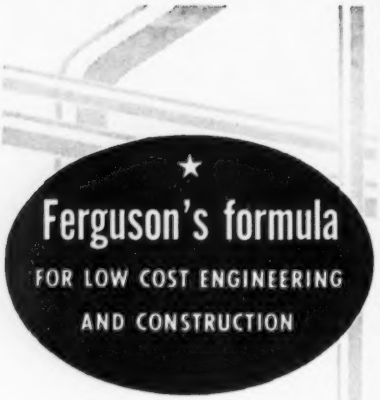

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PUBLICATIONS

Hard-facing electrodes—A new 12-page catalog in color describes the line of Wear-Arc hard-facing electrodes and Wear-Flame hard-facing rods. Copy is written from the "how to do it" standpoint, and three pages are devoted to an application guide citing wear parts, types of wear and the correct electrode or rod to use in 13 major industrial applications on about 75 common types of hard-facing problems. Bulletin AR53-20. ALLOY RODS CO., YORK, PENNA.

Exhausters—Wall exhausters and centrifugal and axial roof exhausters are described in a 6-page folder. Included are specifications for each model in the various types and a list of the company's sales representatives and their addresses. Bulletin 53-B. JENN-AIR PRODUCTS CO., INC., ARCHITECTS AND BUILDERS BUILDING, INDIANAPOLIS 4, IND.

Heavy-duty air-cooled engines—This interesting 64-page catalog gives the A to Z story of Wisconsin's heavy duty air-cooled engines. Engines from 3 to 36 hp are described in detail with photos showing applications. WISCONSIN MOTOR CORP., 1910 S. 53RD ST., MILWAUKEE 14, WIS.

Insulation fastener—A revised file of application data and specifications covers methods for obtaining various types of insulation by the use of stud welded fasteners.

The basic types of fasteners that are covered in the file include the following: Headed insulation studs for securing fiberglass to steel; slotted lagging studs through which wires can be threaded to get magnesia, Kaylo and other block-type insulation; headless studs over which fiberglass, foam glass, felts and cork products, rock or vegetable fibers can be impaled readily prior to installation of a retaining speed clip; split studs for welding through predrilled block material or to fasten insulation that can be impaled; rectangular metal lath studs for use in attaching wire mesh for gunniting, for fireproofing, and as a means of securing banding wires used to retain block-type insulation. NELSON STUD WELDING DIV., GREGORY INDUSTRIES, INC., LORAIN, OHIO.

Safety equipment—Safety Equipment Catalog No. 16 contains illustrations of all protective equipment for workers in most industries. PARKER SAFETY EQUIPMENT CO., 785 LYONS AVE., IRVINGTON 11, N. J.

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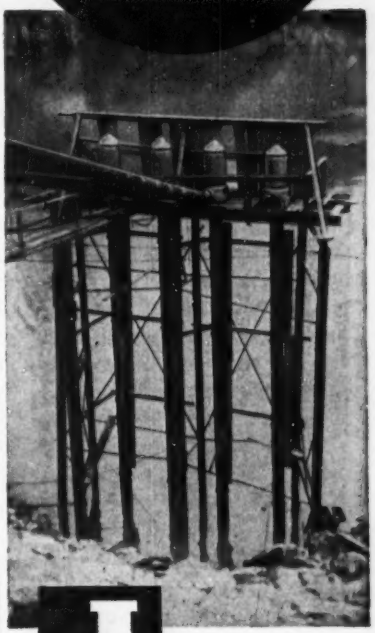

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EDITORIALS

More than engineering involved

THE CIRCUIT COURT RULING that stopped work on Chicago's 950-mgd Central District Filtration Plant (ENR Sept. 3, p. 23) raises question as to what might have been done to prevent such a crippling setback to the city's water-treatment program after $3 million had been spent on the new plant. The fact that property owners along the lakefront objected to building the filtration plant north of the Navy Pier has been known since that site was first proposed. Under such circumstances, could not the involved legal questions raised by property owners in the circuit court have been settled with finality months ago by what lawyers call a "friendly suit?"

On this question, it appears probable that city public works departments can profit from the experience of turnpike authorities set up by some states in recent years. In each instance, before the turnpike authority reached the point of issuing bonds to finance its operations, the bond houses have insisted that they have someone institute a suit to test the legality of the act setting up the authority and giving it power to issue bonds. Those suits were carried right to the state supreme court within a matter of a few weeks, with the result that all major legal issues were cleared up before work started on a particular project.

That procedure cannot be expected to prevent all suits such as the one brought last year against the Ohio Turnpike Authority concerning paving contracts, but it generally can be expected to settle basic issues such as have been raised at Chicago. There the questions now being reviewed relate to such fundamental issues as the validity of an Illinois state legislative act giving the city the right to build this big filtration plant in Lake Michigan. Another is the validity of agreements made many years ago between the Chicago Park District and property owners adjacent to the site for the preservation of the lakefront. The circuit court judge who enjoined the work held that the lakefront must be reserved solely for park and recreational purposes. Strange as it seems, he also held that the 61-acre fill projecting out into Lake Michigan, on which it was planned to build the plant, would impair harbor development.

Chicago has appealed the decision. Normally, the delay resulting from a suit of this kind would only be as long as was required to get the state supreme court to act, since the U. S. Supreme Court usually refuses to review decisions of state courts on issues relating to state laws. But introduction of the question of interference with harbor development would indicate that opponents hope to take the case to the U. S. Supreme Court, on the ground that anything affecting navigation is a federal question. Thus the delay may be long and costly, in actual dollars as well as in time lost in getting better water for much of the Chicago area.

All of which leads to the conclusion that engineers on big projects of this kind may find it desirable to get into the habit of looking beyond purely engineering questions to see whether there may be legal obstacles that could add materially to the cost of the project they have under consideration unless these are settled in advance of contract letting.

Signs of responsibility

THOUGH THE EVIDENCE has been a long time coming, the Building Trades Department of the American Federation of Labor is showing increasing acceptance of responsibility for acts of AFL unions.

Case in point is the swift attempt to bring to heel a recalcitrant local union at Joppa, Ill., which defied an AFL-dictated no-strike agreement covering the huge thermal power plant being built there to serve the Atomic Energy Commission. The 19 international presidents of the building trades unions lost no time in instructing their own men to ignore illegal picket lines, and in taking disciplinary action against the local leader himself.

This sort of action, coupled with the firm handling of the long-standing threat of the carpenters' union to labor unity (ENR Sept. 17, p. 21), would appear to be ample evidence that the AFL's new management, under President George Meany, takes its responsibilities seriously, and will see to it that labor stands up to agreements as it expects management to do.

It is a pity, of course, that the top union leaders were content to sit by and take no positive action in the series of 50 or more strikes at Joppa prior to the latest one—a series that threw the job into such confusion that the owners were finally forced to bring in a new contractor in the hope of making a fresh start.

Like the settlement of the long and costly teamsters' strike in New York City (ENR Sept. 3, p. 27) the action at Joppa demonstrates very clearly that the top officers of the unions can take effective action to end these disturbances. The New York strike—which was allowed to continue for two months and tie up hundreds of millions of dollars worth of building work—was settled almost overnight, when the Teamsters' International President, Dave Beck, finally stepped in and ordered an end.

Any evidence that union leaders are accepting these responsibilities is welcome to the construction industry and the general public. Those leaders have long maintained that organized labor should be looked upon as an important factor in the nation's production system. That argument falls flat so long as irresponsible heads of local unions—or dissident groups in those locals—are permitted to tie up the orderly processes of production in any field of activity.

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